
AMERICAN GAS ASSOCIATION MONTHLY

GAS GOES MODERN

The Address of the President

By OSCAR H. FOGG

A Century of Industrial and Social Progress

By THEODORE G. RISLEY

The Economics of Load Building

By SAMUEL INSULL, Jr.

Nils T. Sellman Wins First Munroe Award

Why Gas Companies Advertise

By WILLIAM H. HODGE

The Gas Industry and the Public

By HENRY C. SPURR

November, 1929



Volume XI
Number 11

Attention

Meter Men

DO you know that the American Gas Association has a publication especially for you?

It is called "Instructions for the Testing and Repairing of Gas Meters."

It was compiled by George A. Lane and William A. Castor, two of the country's foremost experts on gas meters. Copies of this manual can be secured at twenty-five cents each from American Gas Association.



Here It Is

The new and completely revised "Hints for the Housewife" is now available. The old booklet, which was issued by the A. G. A. several years ago, was used by hundreds of gas companies.

Send for Sample Copy Today

The price is \$20.00 per thousand, imprinted with company name.

AMERICAN GAS ASSOCIATION

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New York, N. Y.

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AMERICAN GAS ASSOCIATION MONTHLY

Howard F. Weeks, Editor



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Volume XI

NOVEMBER, 1929

Number 11

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This issue of the MONTHLY has been enlarged so that some of the important and interesting papers presented at the Annual A. G. A. Convention can be presented to our readers.

—The Editor.

The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein.

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Our Own Who's Who



LIV

FREDERICK C. FREEMAN

BORN in Jersey City, N. J., and attended school in Jersey City and Hoboken. Graduated from Stevens Institute of Technology in 1903 with degree of M.E. Entered the employ of The United Gas Improvement Co., Philadelphia, Pa., in the design, construction, and preliminary operation of electric, street railway, hydro-electric and coal, water, and natural gas plants, from 1903 to 1911 and from 1913 to 1919. From 1911 to 1913 was chief engineer of Stacey Manufacturing Co., Cincinnati, Ohio.

Became engineer of the Providence Gas Co., Providence, R. I., in 1919, and was made Vice-President in 1923. At recent A. G. A. Convention, Mr. Freeman was elected to serve a second term as a director of the Association. He is a Past President of the New England Gas Association.

AMERICAN GAS ASSOCIATION MONTHLY

VOLUME XI

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Gas Goes Modern

WITH a definite keynote of modernism, the eleventh annual convention of the American Gas Association goes down in history as truly representative of the important service which this great industry is rendering the American public. A total of 5704 delegates registered to take part in the convention sessions and to listen to able speakers discuss in a most optimistic fashion the future of gas service. The attendance established a new high record, being 27 per cent more than last year.

The new Municipal Auditorium in Atlantic City proved to be an ideal meeting place. There was ample space for the large and imposing exhibition of appliances and equipment in this large and new convention hall, and it was with considerable pleasure that the delegates learned that the 1930 convention will be held in Atlantic City. The auditorium was particularly well appointed for the meeting and every convention detail was arranged for.

In addition to the spirit of modernism, there was a pronounced spirit of optimism that cropped out in practically every general session and sectional meeting address. The establishment of new high records for sales in the first eight months of 1929, together with the successful completion of several of the more important projects in the industry, contributed to this feeling of security as regards the future.

Gas as a modern fuel was portrayed strikingly in the large exhibition of appliances and equipment which entirely filled the largest room in the auditorium. New and better appliances and other developments were featured by the manufacturers and attracted the attention of the gas men. A great deal of unstinted praise was heard on all sides for those in charge of the exhibit, C. W. Berghorn and Wm. DeFreitas, and for the manufacturers who made the display possible. Every delegate was impressed with the modernistic A. G. A. exhibit on the stage in the exhibition hall. This exhibit of A. G. A. services and literature was arranged by the Commercial Section Committee on Window and Store Display, R. M. Martin, of New York, N. Y., chairman.

One statement, taken from the Presidential Address of Oscar H. Fogg, is representative of the feeling of the industry as revealed at the convention:

"I have referred to the exhibition as one indication of the progress and virility of the gas industry. It calls for more than passing mention. Our manufacturers, who have made the exhibition possible, deserve the thanks and appreciation of all of us, and their presentation should be carefully studied if we would be well informed. Only an industry pardonably proud of its achievements and optimistic of its future could produce such a remarkable display, which so clearly demonstrates the

A. G. A. Officers—1929-1930



*Vice-president
Clifford E. Paige*



President Bernard J. Mullaney



Treasurer William J. Welsh

growth and continued improvement in the many fields there represented.

"There are other manifestations of progress. During the Association year just ended, the gas industry of the United States and Canada registered a steady advance, and entered upon the fruits of the careful planning of past years, many of the details of which are before you in the statistics compiled, studied, and interpreted by the Statistical Bureau at Association Headquarters which is doing invaluable work. But however gratifying this record of general progress may be, it is a significant fact that we are devoting more attention to and studying more critically those lines in which our improvement has been less marked and where the need for greater effort is becoming more apparent.

"The gas industry is optimistic as to its future, but fortunately ours is not the brand of optimism that unduly colors the facts, and so we are endeavoring to search out our defects and to plan our work in such a way that the industry's concerted effort will be focussed upon whatever weaknesses and deficiencies our diligent self-examination may disclose. It is this spirit—the determination constantly to strengthen and improve—that underlies our far-reaching program of research."

General Sessions

The first general session of the convention was called to order by President Fogg on

Tuesday morning, October 15. Following the opening formalities, telegraphic and cable greetings were read from Albert M. Barnes, of Cambridge, Mass., the German Gas Association, the Swiss Gas Association, the Mid-West Gas Association, the British Commercial Gas Association, and Henry L. Doherty.

Mr. Doherty said in part:

"Have just awakened to the fact that time has flown so fast that our annual convention is due to be held this week. It is a source of great regret to me that I am again absent from another meeting and that necessity has not permitted me to keep my previous promises as to when I would be back and with an earnest effort to contribute to your work with all of my old-time vigor. The Association has done so splendidly during my absence that possibly I am no longer needed but, nevertheless, I greatly regret that I will not see the many good friends for whom I have a great affection, and also that I cannot learn from them of the other of my many old friends who, like myself, will be absent from this meeting. The industry has been efficiently served by the intelligent and unselfish way in which the American Gas Association has been conducted, and we can all work as best we may for continued

Newly-Elected Directors and Section Chairmen

*F. T. Hulswit**A. B. Macbeth**R. W. Gallagher**H. C. Abell**P. S. Young**J. S. DeHart, Jr.**F. C. Freeman**F. A. Miller**Arthur Hewitt**H. C. Morris**J. M. Bennett**F. C. Curfman**B. V. Pfeiffer**G. E. Whitwell**J. L. Conover**C. C. Krausse*

NEWLY ELECTED DEPARTMENTAL AND SECTIONAL OFFICERS

THE following officers were elected by the Sections and Departments at the 1929 Convention:

Natural Gas Department

Chairman—Henry C. Morris, Dallas Gas Co., Dallas, Texas.

Vice-chairman—H. C. Cooper, Hope Natural Gas Co., Pittsburgh, Pa.

Accounting Section

Chairman—J. L. Conover, The Public Service Electric and Gas Co., Newark, N. J.

Vice-chairman—J. I. Blanchfield, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Commercial Section

Chairman—Geo. E. Whitwell, Equitable Gas Co., Pittsburgh, Pa.

Vice-chairman—E. R. Acker, Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y.

Industrial Gas Section

Chairman—C. C. Krausse, Consolidated Gas Electric Light and Power Co. of Baltimore, Md.

Vice-chairman—D. W. Chapman, The Peoples Gas Light and Coke Co., Chicago, Ill.

Manufacturers' Section

Chairman—F. G. Curfman, Improved Equipment Co., New York, N. Y.

Vice-chairman—E. S. Dickey, Maryland Meter Works, Baltimore, Md.

Publicity and Advertising Section

Chairman—James M. Bennett, Philadelphia Electric Co., Philadelphia, Pa.

Vice-chairman—Donald M. Mackie, Allied Power and Light Corp., Jackson, Mich.

Technical Section

Chairman—B. V. Pfeiffer, The United Gas Improvement Co., Philadelphia, Pa.

Vice-chairman—R. G. Griswold, Cities Service Co., New York, N. Y.

and increasing benefits from the earnest, intelligent, and unselfish efforts that have always been contributed by the officers and members of the Association."

Following a brief summary of the Association's finances, by Clifford E. Paige, of Brooklyn, N. Y., Managing Director Alexander Forward presented his report. This is printed in full elsewhere in this issue of the MONTHLY.

E. H. Rosenquest, of Mt. Vernon, N. Y., reported for the Nominating Committee, submitting the following names:

For President, B. J. Mullaney, Chicago, Ill.

For Vice-president, Clifford E. Paige, Brooklyn, N. Y.

For Treasurer, Wm. J. Welsh, Staten Island, N. Y.

The election was unanimous.

"What the Laboratory is Doing for the Industry" was the title of an address by R. B. Harper, of Chicago, Ill. Mr. Harper told of the many research programs of the laboratory, and in referring to the testing activities said "that an ample number of approved types of gas ranges, space heaters, water heaters, boilers, and furnaces are now available so that every member gas company can logically confine its sales exclusively to approved types of these appliances."

The final address of this session was by Judge Theodore P. Risley, of Washington, D. C. This is printed in this issue of the MONTHLY.

At the executive session, following the general session, the following directors were elected:

H. C. Abell, Electric Bond & Share Co., New York, N. Y.

J. S. DeHart, Jr., Isbell-Porter Co., Newark, N. J.

F. C. Freeman, Providence Gas Co., Providence, R. I.

R. W. Gallagher, The East Ohio Gas Co., Cleveland, Ohio.

Arthur Hewitt, Consumers Gas Co. of Toronto, Toronto, Ont., Canada.

F. T. Hulswit, American States Securities Corp., New York, N. Y.

A. B. Macbeth, Southern California Gas Co., Los Angeles, Calif.

P. S. Young, The Public Service Electric and Gas Co., Newark, N. J.

Fred A. Miller, S. R. Dresser Mfg. Co., Bradford, Pa.

The second general session opened on Wednesday morning with brief presentations by E. J. Kreh, chairman of the Accident

Prevention Committee; A. C. Rissberger, chairman of the Committee on Education of Gas Company Employees, and L. R. King, chairman of the Rate Structure Committee.

The address of Miss Laura M. Cauble, of New York, N. Y., is printed in this issue, as is also the address by Geo. E. Whitwell, of Pittsburgh, Pa.

A feature of real interest to all delegates was the ten minute trans-oceanic telephone message from Sir David Milne-Watson, LL.D., D.L., Governor of the Gas Light and Coke Company, of London, England. This message, which came via the trans-oceanic telephone, was broadcast throughout the meeting room, and was especially clear and free from static. Mr. Milne-Watson's fitting remarks will be printed in the December issue of the MONTHLY.

The inspiring address on "Economics of Load Building," by Samuel Insull, Jr., president of the Midland United Co., Chicago, Ill., is printed in full in this issue of the MONTHLY.

The evening meeting of the convention was enlivened with the music of B. A. Rolfe's famous orchestra and selections by Charles Hackett. Portions of this program were broadcast over a nationwide network of the National Broadcasting Co. The illness of Dr. Harvey N. Davis, president of Stevens Institute of Technology, made it impossible for him to be present to present his address.

An interesting high-light of the meeting was the presentation of the Charles A. Munroe Award of the Association to Nils T. Sellman, of New York, N. Y. This presentation is given in detail in this issue of the MONTHLY, as is also the presentation of McCarter Medals for life-saving. These

FUTURE NATURAL GAS MEETINGS

At the well-attended A. G. A. Convention session of the Natural Gas Department it was voted to continue the practice of holding annual natural gas meetings.

Announcement of the 1930 meeting will be made in an early issue of the A. G. A. MONTHLY.

RESOLUTIONS

THE American Gas Association in convention assembled welcomes the opportunity upon the occasion of the Golden Jubilee of Light to voice its congratulations and appreciation to Thomas Alva Edison for his wonderful achievement upon which has been built a great sister industry and which has contributed so largely to the comfort and welfare of mankind.

RESOLVED, that the American Gas Association is in full and hearty accord with the principle of reasonable and effective conservation of natural gas as evidenced by the creation of a committee from its Natural Gas Department to cooperate in this respect with governmental and other agencies.

medals were presented personally by Thomas N. McCarter, president of the Public Service Corporation of New Jersey, and donor of the medals.

The third general session on Thursday morning opened with a splendid address by Walter C. Beckjord, of Chicago, Ill. This address will be printed in the December issue.

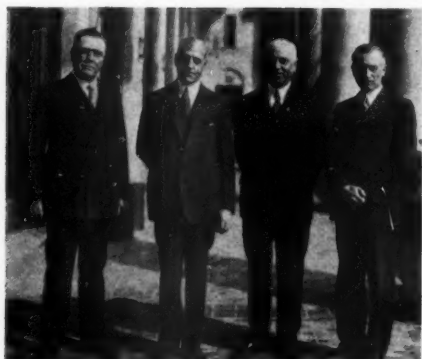
Henry C. Spurr, editor of *Public Utilities Fortnightly*, then presented an interesting address on some phases of regulation. This address is printed in this issue of the MONTHLY.

"Getting and Applying the Facts," was the title of an inspiring address by Dr. George Edgar Vincent, president of the Rockefeller Foundation, New York, N. Y.

"Applied science gets nowhere unless fundamental science is flourishing," Dr. Vincent said.

The great economic growth of Germany before the war and its recovery since, he said, were due to its tremendous faith in fundamental research. In the United States the same thing now is being accomplished by the cooperation of industry and science.

Science, he pointed out, is the underlying influence of modern life. It is an international force which is bound by no tariffs nor any of the usual restrictions between nations. He made a plea for the silent and sometimes obscure workers of the laboratory, and praised the American Gas Association for its research activities, because, he said, it re-



B. J. Mullaney, O. H. Fogg, W. J. Welsh, and Alexander Forward pose on the boardwalk

quires imagination, courage and faith to stand by fundamental research.

The closing remarks of the convention were presented by A. W. Robertson, chairman of the board of the Westinghouse Electric and Manufacturing Co., Pittsburgh, Pa. These remarks were considered so fitting that they are printed in full in this issue of the MONTHLY.

All of the entertainment functions of the convention were of interest to the delegates, and especially the fancy dress ball on Thursday evening. Many gorgeous, beautiful, and humorous costumes were seen, and the judges had a difficult time in selecting the winners. The following were the final choices:

Ladies

Most Beautiful—Mrs. Marshall Milton, Dry Steam Valve Co., New York, N. Y.

Most Striking—Mrs. Marie MacFarland, Atlantic City Gas Co., Atlantic City, N. J.

Most Original—Mrs. Herbert Wellington, Brooklyn Union Gas Co., Brooklyn, N. Y.

Most Unique—Miss Mary Longley, Atlantic City Gas Co., Atlantic City, N. J.

Men

Most Beautiful—C. R. Harding, Giant Manufacturing Co., Council Bluffs, Iowa.

Most Striking—S. E. Linton, Nashville, Tenn.

Most Unique—H. Y. Carson, Birmingham, Ala.

Most Original—A. M. Apmann, Consolidated Gas Company of New York, N. Y.

As a blind beggar, Mr. Apmann advertised gas for house heating. And, believe it or not, he donated the receipts of the evening, \$10.37, to the Relief Fund of the Mutual Aid Society of the Consolidated Gas Company.

It is impossible in this issue of the MONTHLY to give a comprehensive review of all the departmental and sectional meetings. All were well attended, and the favorable comments from delegates were many, indeed. The Women's Meeting was especially well attended. A few of the papers presented at the sectional and departmental meetings are printed in this issue of the MONTHLY, and more will be printed in the December issue.

New York Paper Editorializes on Trade Assn's

SOME particularly interesting comments on trade associations and the work they do appeared in a recent editorial in the New York Evening Sun. Portions of this editorial are quoted here:

"From A to Z—from Adams to Ziviak—the membership roll of the Bookbinders Trade Association shows a membership of ninety-nine. They seek fellows, but they do not desire drones. The association bulletin says: 'Our appeal is not for mere membership as such; it is not enough to pay dues; not enough to attend meetings; our appeal is for Active Membership.' The capital letters are justified; one intelligently active member of a trade association is worth a dozen who must be dunned for their dues and forget to notify the secretary when they acquire new addresses.

"The association calls for generous pooling of ideas; this is a sensible thing, in every calling. The 'secrets' meticulously guarded by some craftsmen are usually overvalued by their possessors. The bulletin gives some arithmetic: 'If a group of fifty men in the binding industry, averaging twenty years' experience each, get together to exchange experiences and knowledge, there is present the accumulated knowledge and experience of 1,000 years of binding.' The association well asks, Who can truthfully say that he cannot learn anything of value from that accumulated store of experience? The answer is foreordained; 'He must be either an intolerable egoist or an unusually difficult mental absorber.' More Active Members to the Bookbinders Trade Association."

The Address of the President

By OSCAR H. FOGG



O. H. Fogg

made during the year which the convention brings to a close.

In the case of the American Gas Association that seems to me unnecessary. Our present methods of promptly disseminating information of interest keep our members accurately informed of the Association's activities and the developments that are taking place while in the report which has just been so ably presented by our Managing Director, and elsewhere in the course of these general sessions, in the great exhibition of the Manufacturers' Section, and in the papers, addresses and reports to be presented and discussed in the meetings of our other sections, will be found tangible evidence, not only of the extent to which our industry is advancing, but also of the spirit of enthusiasm and devoted interest of our members, to which the progress of our Association and our industry is largely due.

I have referred to the exhibition as one indication of the progress and virility of the gas industry. It calls for more than passing mention. Our manufacturers, who have made the exhibition possible, deserve the thanks and appreciation of all of us, and their presentation should be carefully studied if we would be well informed. Only an industry pardonably proud of its achievements and optimistic of its future could produce such a remarkable display, which so clearly demonstrates the growth and continued im-

provement in the many fields there represented.

There are other manifestations of progress. During the Association year just ended, the gas industry of the United States and Canada registered a steady advance, and entered upon the fruits of the careful planning of past years, many of the details of which are before you in the statistics compiled, studied, and interpreted by the statistical bureau at Association headquarters which is doing invaluable work. But however gratifying this record of general progress may be, it is a significant fact that we are devoting more attention to and studying more critically those lines in which our improvement has been less marked and where the need for greater effort is becoming more apparent.

The gas industry is optimistic as to its future, but fortunately ours is not the brand of optimism that unduly colors the facts, and so we are endeavoring to search out our defects and to plan our work in such a way that our concerted effort will be focussed upon whatever weaknesses and deficiencies our diligent self-examination may disclose. It is this spirit—the determination constantly to strengthen and improve—that underlies our far-reaching program of research.

You have heard much of the Association's research work during the past two years. Later in this program you will hear Mr. Beckjord speak more directly on that subject. I refer to it now chiefly to emphasize the fact that we are interpreting the word in its literal dictionary rendering and applying it in a carefully planned and systematically directed effort to secure improvement and economies in every department of our service.

C. F. Kettering, president of the General Motors Research Corp., said in an address several years ago: "There are two kinds of research men—those who go out and research for the sake of researching, and those who go out and research for the sake of do-

Presented at General Sessions of A. G. A. Convention, Atlantic City, N. J., Oct. 15.



Partial view of the large and imposing exhibition of gas appliances

ing something for the business with which they are connected." The research work of the American Gas Association is of this latter description, having as its basic objective, improvements, economies, developments—that will make possible a wider range of public service, and a stable and balanced prosperity in every section and department of our business.

Had nothing else been accomplished, the year's Association work would have been worth while through having brought a realization of the strength and resourcefulness of our competitors and an approximation of the essential strength of our own forces and of the preparedness necessary to maintain and accelerate our present rate of development. It is not enough for us to know that we have the cleanest, most efficient, most dependable, and as a rule the most economical fuel, and that we have the best, most attractive and safest heat-using domestic ap-

pliances and the most efficient industrial appliances in the field. The public must know it also, and this means that the highest type of well-trained sales managers and sales men and women are essential, and that all avenues of information must be diligently utilized. Unless we make full use of our opportunities, we shall fall behind in the contest between direct competitors in specific lines and between indirect competitors for the nation's available purchasing power.

So we have during the year successfully operated a course in domestic gas salesmanship and we are now preparing a course in industrial gas salesmanship. We are also preparing studies and data sheets for the use of sales managers. It may be that the Association has never taken a more significant step. We appear at last to realize what we must do to extend the advantages of gas service. To use an obnoxious but descrip-



and equipment at the A. G. A. Convention in Atlantic City, N. J.

tive phrase, we are becoming "sales conscious."

It is known to all of you that the American Gas Association's activities proceed upon a definite plan, officially adopted in 1926 after careful study by a committee of the foremost men of the industry, known as the Three-Five Year Plan. All projects are measured by its declarations before final consideration. Three years of this period have expired. Its results were reviewed at the conference of the Executive Board and Advisory Council on May 31 and June 1 of this year, by Hon. George B. Cortelyou, who was chairman of the committee drawing up the plan. In his review published in the A. G. A. MONTHLY for July, Mr. Cortelyou used the occasion to commend the operation of the Five-Year Plan as having stood the test of time and having been productive of much benefit to the industry. If it had done nothing more than to prevent waste

and duplication and the dissipation of effort upon side issues, it would have been abundantly justified.

"But it *has* done more," he said. "It has, we believe—based on the facts of record—been a controlling factor in shaping the activities of the Association along constructive and up-building lines for the good of the industry and the public served by it."

A similar view was expressed in the resolution, adopted by the Conference, and which the Managing Director referred to in his report.

To this I can only add that our accomplishments thus far have been the natural result of the best thought and efforts of a group of men in whom are happily balanced the qualities of imagination, broad vision, and a practical appreciation of the industry's requirements.

Decisions during the year by courts and commissions have greatly assisted us in en-

larging our field of service to the public by recognition of the justice and equity of the principle of an adequate customer charge (the three-part rate) to cover the expense of serving the small and unprofitable customer.

Undoubtedly growing recognition of this principle by commissions is due in no small degree to the report warmly approving the underlying reasons for rates based on scientific cost allocations, made to the National Association of Railroad and Utilities Commissioners in 1927 by its Committee on Public Utility Rates, to which reference was made in my presidential address last year.

It is significant that the same committee, reporting to that Association at its recent 1929 Convention, said that the 1927 report "set out in much detail and with rare soundness the advantages of the three-part rate for gas. This report has been useful and beneficial and is ample to meet the present needs of rates for gas."

I repeat and emphasize my statement of a year ago, that we should have united support of the principles of valuation, rate making, and return, so repeatedly approved by the industry.

All of our sections, and our general committees, continue to do most valuable and constructive work. The loyal, generous labors and cooperation of our committeemen are thoroughly appreciated. They are essential to the accomplishments of the industry through the Association, and I commend their reports to your careful study.

In the same spirit, we acknowledge the splendid team work of the Natural Gas Department, as a result of which this branch of our industry has become an indispensable part of the Association's activities. Evidence of this fraternal disposition is abundant on every hand.

We owe a great deal also to our affiliated associations throughout the United States and Canada. All their conventions are attended by at least one of our officers or a responsible representative of Headquarters, and we and they are closer together than ever before in mutual understanding, comradeship and cooperation.

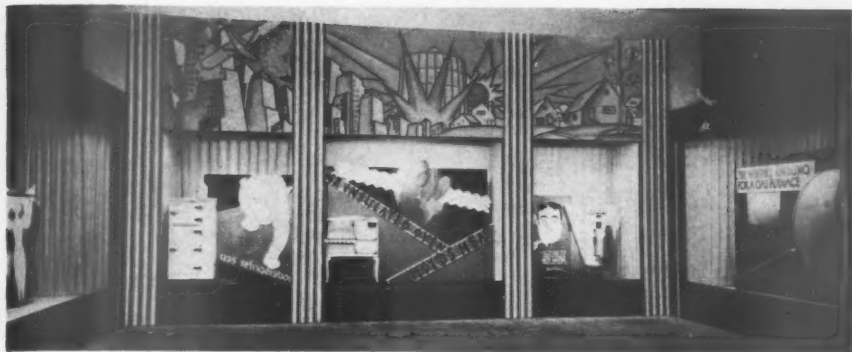
The investigation of the public utilities by the Federal Trade Commission is now about to enter its second phase, relating to financing. The American Gas Association, whose activities, we believe, cannot be seriously criticized, is limiting its evidence to a statement of its organization, plans and purposes, in which it has a justifiable pride, in order that no impression should remain, upon a partial record, that the Association is organized or is operated for any purpose other than the interest of its members, through service to its public.

Mergers and Consolidations

In the utility industry, as in others, the present trend is in the direction of merger and consolidation. There are some who view this tendency with apprehension, but the student of business economics will find in it no cause for alarm. The utility industry today is big—it will be bigger—and properly so, because it rests upon a basis of almost universal service. Those who are over-awed by mere magnitude and raise the old cry of "trust" overlook the fact that under the broad policies of customer ownership and the wide distribution of securities, utilities are not a "trust" but, as I have elsewhere said, a trusteeship for thousands of wage earners, families, and business men and women in every section of the country.

Although regulated by the properly constituted representatives of the people, public utilities are, first of all, business organizations, subject to the same economic laws that govern business in general. They exist to produce and supply service and commodities and to receive, therefore, reasonable and just remuneration. If that service were not economically right, if it were not worth the price charged, not all the constitutions in the world could guarantee a fair return upon the investment.

Emerson, seventy years ago, said that business is the greatest ameliorating force in the world. He could see further into the essence of things than is given to most of us. Then the popular notion was that business was a kind of game or contest between buyer



Part of the window display exhibited on the stage at the Atlantic City Convention of the A. G. A.

and seller in which one side gained and the other lost. Now we know that both *must* gain if business is to endure and prosper. The modern idea is that the exchange of goods or services must be mutually profitable and satisfactory, and that both buyer and seller must benefit, and upon this foundation the structure of modern business has been reared to its present stupendous proportions. Thus good ethics has finally come to be good business.

Service Is the True Touchstone of Progress

The utilities make no claim to superior wisdom or virtue, but I believe in all sincerity that they have carried this idea of mutuality in their operations as far as any other industry. No one need worry about the utilities becoming too large so long as their growth is in harmony with this principle—so long as bigger size means better service. The two should be complementary, like the opposite sides of a shield; and while many people are still inclined to see only the side of the shield that reflects size and to ignore the other side which reflects service, I believe that the public is more generally coming to see both sides and to recognize the advantages of large-scale organization as applied to the utility industry. It does expect, however, that these advantages, so far as it is concerned, shall be real and not illusory, mutual and not one-sided. It is

as important to the utilities as to the public that this just expectation shall not be disappointed, and it will not be, if we keep close to the fundamental principle that service is the true touchstone of progress.

For two years it has been my privilege to serve as your president. Of that honor I have been most deeply conscious. In spite of previous close contact with the work of the Association, these last two years have shown me more clearly than ever the great depths of loyalty and devotion to a common cause, the stimulating heights of enthusiasm and adventurous energy, which constitute the enduring assets of our business. My personal debt for the generous display of these qualities and for the support and encouragement that I have received from all sides during my term of office is gratefully acknowledged, to the membership of the Association generally, to the members of our Executive Board, which has been the real guiding force, to Vice-president Mullaney, always ready to respond to any call for service, and to Managing Director Forward and the loyal men and women of the Association's Headquarters staff.

No man, no industry is ever poor that has these resources. However prosperous our future may be, it will be still further enriched by the sense of solidarity which has become perhaps one of the few remaining traditions which our industry, for its own sake, needs to revere.

Nils T. Sellman Wins First Munroe Award of the Association



N. T. Sellman

NILS T. SELLMAN, director of utilization and sales for the Consolidated Gas Company of New York, and assistant secretary of the company, was presented with the prized Charles A. Munroe Award of the American Gas Association at the evening meeting of the annual convention, October 16. Mr. Sellman has the honor of being the first to receive this coveted prize.

This award, made possible through the generosity of Charles A. Munroe, a Past President of the A. G. A., is given to the individual who, in the opinion of the directors, has contributed most to the development of the gas industry during the year. The committee which recommended the award to Mr. Sellman consisted of Clifford E. Paige, of Brooklyn, N. Y.; F. C. Freeman, of Providence, R. I.; and Arthur Hewitt, of Toronto, Canada, chairman.

The presentation was made personally by Mr. Munroe.

The award to Mr. Sellman takes on added significance when it is realized that more than 20 cases were submitted for consideration, all of which showed commendable work and remarkable enterprise.

The selection of Mr. Sellman by the committee was based on the fact that he, probably more than any other individual, has made the gas refrigerator available for the gas industry of America. The pioneering work he did in connection with the perfecting of this refrigerator for use is recognized by all. In the words of the committee, "he kept his courage and optimism through the very trying periods when many had about concluded that the gas refrigerator was impractical."

The committee also stated that "his persistence and ability have given the gas indus-

try an impetus in the direction of developing and keeping the domestic load greater than any other factor in recent years."

Due attention was also called to the fact that Mr. Sellman has been a leader along the lines of trade cooperation in the sale of appliances, and has contributed greatly to the advancement of the industry through active membership on the following A. G. A. committees:

- Industrial Gas Research Committee
- Managing Committee, A. G. A. Laboratory
- Mixed Gas Research Committee
- Approval Requirements Committee
- Safety Requirements Committee
- Committee on National Advertising
- Committee on Economic and Engineering Survey
- House Cooling Committee
- Managing Committee and Subcommittees of Industrial Gas Section
- Managing Committee of Publicity and Advertising Section

Mr. Sellman has also delivered many lectures and addresses before universities, business groups, etc., on practically all phases of the gas industry, and has extended sympathetic attitude and cooperation to the manufacturers in their efforts to develop new and greater uses for gas.

Booklet on Heating Cores Is Now Available

THERE is available for free distribution from Association Headquarters copies of a pamphlet entitled "The Use of Convected and Radiated Heat in Core Ovens," by H. L. Campbell, associate professor of metallurgical engineering, University of Michigan, Ann Arbor, Mich.

This booklet gives fundamental comparative data between the two methods of heating cores and draws three conclusions that are of unusual interest and value to industrial gas men in securing and holding this class of business for gas.

The Economics of Load Building

By SAMUEL INSULL, JR.



Samuel Insull, Jr.

THE economics of sales promotion is a subject too comprehensive to be dealt with reasonably in a single address. The gas industry, moreover, is well roused to the crying need for additional sales. The time is long past when the managements of gas companies

were content to see a portion of their load gradually sapped away by the changes in living conditions of their customers, and to sit placidly by, hoping that an increase in population would offset the loss.

To consume your time, therefore, urging upon the gas industry the need for an expansion of its sales is at once improper and useless. These remarks are made with the assumption that the desirability of sales promotion is no longer in controversy.

However, the economics of sales promotion are not disposed of with the decision that increased sales are desirable. Consideration of the economic factors is necessary to a determination of the methods of sales promotion and to an evaluation of the results that can be hoped for.

The purpose of this paper, therefore, is to consider the methods to be employed by the management in promoting sales, in the light of the economics governing the consumption of our product. Generalization on this subject is dangerous. The gas business within itself is a regulated monopoly, but in the economic whole it competes with other fuels. Conditions governing this competition vary throughout the country. There are, however, certain methods of attack to the problem which can be well employed wherever gas is to be sold. This paper at-

tempts to deal more with these fundamental factors than with concrete additions of necessity local, and therefore, varying.

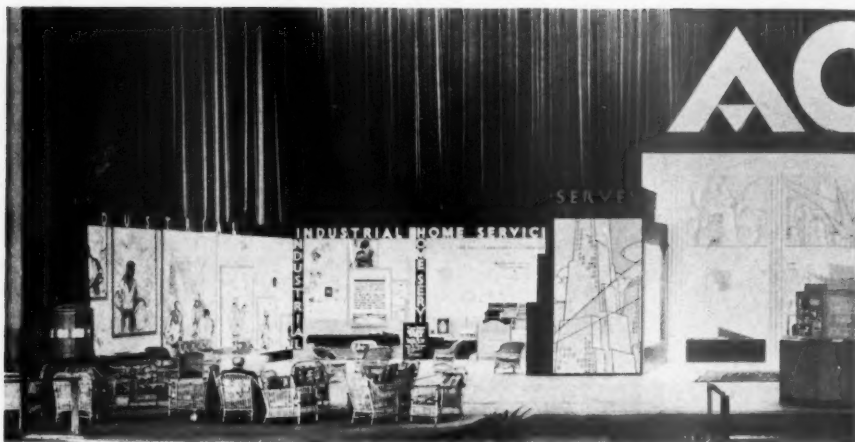
Sales can be increased in two ways: By securing new customers, and by raising the consumption of the existing customers. The first is more a matter of fortune than intelligence. Every gas executive will extend the mains when the return on the new investment permits. This extensive expansion of the market depends on the expansion of the community served by the gas property almost exclusively.

The intensive expansion of the market, however, is almost entirely the result of cultivation. Increase in sales in this field can be only the result of sales promotion. Consideration of the problem of increasing sales must, therefore, be largely from the point of view of the existing territory served by the mains. How can the industry increase the consumption of its existing customers? How can it bring onto its books the prospective customers it is not now serving, but who are accessible to its present mains?

Three possible means exist of expanding the sale of any product: First, the price can be lowered; second, demand can be stimulated in the mind of a possible purchaser through advertising; third, the pressure on the supply can be increased by adding to sales impetus.

In any business today, discussion of the need of coordination and cooperation becomes trite. Though he may disagree with me at first, there is hardly a gas manager here today who will not subscribe to the statement that increased sales can be secured only by a coordinated effort along these three lines, by a combination of attractive rates, persuasive advertising, and proper salesmanship. There is, however, considerable discussion on the relative importance of these factors, and on the inter-relation between them.

Presented at General Sessions of A. G. A. Convention, Atlantic City, N. J., Oct. 16.
Mr. Insull is President of the Midland United Co., Chicago, Ill.



This is the exhibit of the services rendered by the A. G. A. to its members. It

The subject of rate structure has undergone prolonged study, excited considerable controversy, and been the object of not a few practical experiments. Through all the controversy and common to all the experiments, however, is the fact that a rate, in order to promote sales, must reduce the cost of gas to the consumer who uses more than the average. When I say, therefore, that all sales-inducive rates are fundamentally designed to reduce the unit cost of the commodity to the consumer who uses more than the average amount of gas, I believe I am stating a fact to which practically all of the schools of thought on gas rate basis will subscribe.

Rate students, however, will point out that if the cost of gas should be made more attractive to the larger consumer, by the same token, the small consumer is not paying a rate compensatory for the service that is rendered to him. This statement, however well-founded, has, if I may say so, no place in the consideration of sales promotion. It is inevitable that if a proposition is submitted to raise the rates to the small gas consumer and decrease those to the large gas consumer, without altering the total income to the gas company, public reaction will be unfavorable. This is probably due in most part to the fact that a greater number of customers

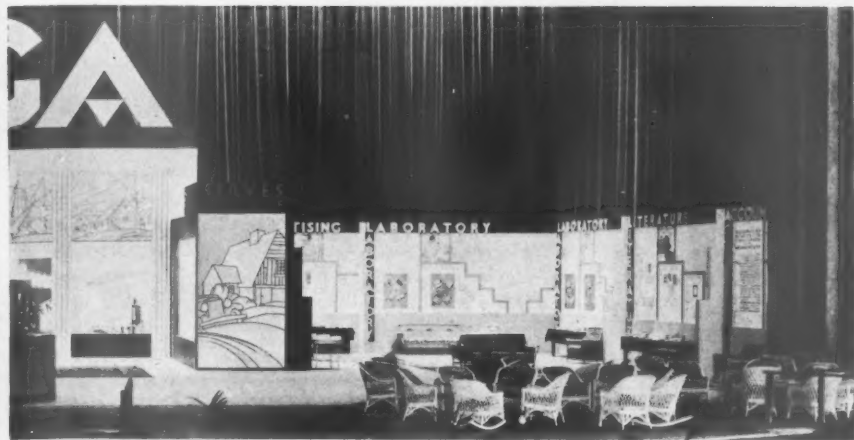
consume less than the average amount of gas. Such a proposition, therefore, although not affecting the total price paid by a community for its gas service, will excite the antipathy of a majority of the consumers.

If such a step is necessary from the point of view of eliminating discrimination—if it is desirable to relieve a condition where the small individual business man is penalized for the benefit of the householder—this paper has no comment to offer upon it.

If it is necessary to permit the gas company to meet its financial charges, and is put forward as the only alternative to a general increase in rates in order to permit the gas property to pay a fair return on its investment, it has no place in this discussion.

At the risk of repetition, but to avoid possible serious misinterpretation, I repeat that I am discussing such a step solely from the point of view of its desirability as an agency in sales promotion on the part of a company that is not faced with either the problem of discrimination, or the problem of adequate return mentioned above.

As an agent of sales promotion alone, such a rearrangement of the gas rate can hardly be desirable. True, from a scientific point of view, it will furnish an inducement to the consumer to use more of the product. At the same time, however, that such an ad-



was arranged by the Commercial Section Committee on Window and Store Display

justment pleads with the purse of the consumer, it antagonizes his emotions.

This is an age of publicity, an age of "catch words." We are trained to think in trade-marks. The public evaluation of a product, therefore, tends to resolve itself into the briefest possible statement of the proposition's most arresting fact. The first side of the question that the public mind can lay hold of will determine the public's final decision on the question. In this case, the initial fact that will arrest the public's attention is that gas rates have been increased. The truth may be stated, "The cost of gas to some customers has been increased and to some has been decreased." But the public will soon forget—if it ever notices—the first "some" and the last phrase. The public opinion will rapidly become—if it is not from the start—"The cost of gas to . . . customers has been increased. . . ."

Mass psychology, not economic, will so determine the gas company, therefore, while furnished with better means to induce the customer to buy gas, will build up a sales resistance resulting from the general opinion that the product has become more expensive.

To sum up, therefore, one might say that a rate proposition designed to promote sales, in addition to reducing the unit cost as the consumption increases, should not increase it

if consumption remains the same. Economics may exclaim that such a proposition is unsound, but mass psychology reiterates that, sound or unsound in theory, in practice it alone is workable.

It might at first appear that this statement is at variance with the disclaimer voiced earlier of the desire to discuss rate theories. Such a disclaimer, however, was sincere. The writer suggests that almost any form of inductive rate can be made to conform to the above conditions, by offering it optionally to be used only if the customer so desires. The rate proposition does not demand an optional rate. If, however, it is desired to use a rate form which can not otherwise satisfy the condition of not increasing the cost of gas to the less than average customer, this end can always be accomplished by offering the rate optionally.

Such a proposition, however, is not as contradictory as it would first appear. True, it will inevitably result in an initial decrease in revenue. All of us, however, have been educated to spending considerable sums of money in operating sales organizations and in advertising. The initial decrease in revenue resulting from such a rate realignment should, in my opinion, be regarded in just this light. It is a part of the all-in selling expense.

The degree to which a sales inductive rate of this character can go is determined by the loss in revenue that can be sustained temporarily in conjunction with the advertising appropriation and the operating cost of the sales department.

Parenthetically, and in the repeated attempt to avoid controversy, permit me to reiterate that this attitude towards rate readjustment is only taken when considering the readjustment as an agency of sales promotion. Readjustment of another type may well be necessary from the point of view of avoiding discrimination or of permitting a property to meet its financial charges, but it has no place in a simple sales promotion program.

A condition of rates, moreover, is essential to the success of an advertising campaign and of a sales effort. In this connection, permit me to cite the following experience:

The experiment was tried in two neighboring cities of about the same population and buying power. In the first, an optional rate was offered, which did not increase the cost of gas to any consumers, and reduced it to certain of the consumers who would increase their consumption. In the second town, no readjustment of the rates was made, which, however, were already on a fairly standard sliding scale block basis. In both towns, a like amount of advertising was displayed and in both towns sales effort was accelerated. In the second community, however—that in which no inductive rate was offered—an amount equal to the annual reduction that would have resulted from the installation of such a rate was used in accelerating to an additional degree the sales activity through the increase of commissions to salesmen and an increase in the number of salesmen. Relative figures of consumption are available, but were disregarded as affected principally by conditions existing prior to the experiment.

The sales, however, of certain types of load building equipment by the gas company were recorded. In both towns, the self-action gas water heater was concentrated upon as the greatest medium of building

consumption. In the first town where the rate was in effect, 457 of these pieces of equipment were sold during the first year by the gas company alone; whereas, in the second community, there were sold only 214. This fact is more of an indication than a proof. Its significance, however, is marked.

On the subject of rates, therefore, the suggestion is offered that the proposition of reducing rates to the more than average consumer, without increasing them to the less than average consumer, should be considered along with an advertising campaign and an increase in sales effort. Such a readjustment of rates is not, however, as unsound economically as it may appear when the temporary loss in revenue is considered as a selling expense; moreover, the loss is not recurrent and disappears when the consumption is secured.

On the other hand, the institution of this type of a gas rate is practically useless without an increase in sales effort. Such a rate readjustment will obviously not decrease the rate quoted for the first thousand cubic feet of consumption. A graduated structure, unless explained to some degree, is not comprehended by the public. Gas was so long sold on a flat basis of so much per thousand cubic feet, regardless of consumption, that the public still assumes that the top gas rate is the final gas rate. This, moreover, is hardly a subject that can be adequately dealt with by advertising. Advertising, to succeed, must begin with a fact well known to the public, and from this fact, go on to others which it is desired to inculcate into the public consciousness. To be effective it must be simple. The explanation of a graduated rate scale can hardly be made sufficiently simple even by the most expert copy writer.

The function, therefore, of interpreting the inductive rate to the customer, of conveying to him the fact that the new rate will give him a decreasing cost for the unit of consumption as he increases his demand for service, is properly the function of the salesman.

Should the management, therefore, have decided to expend a given amount of money

in the creation of a sales inductive rate, it must necessarily, unless this expenditure is to be wasted, increase the appropriation for sales promotion if the expenditure under the head of rates is to be fully productive.

The writer hopes he will not fall, in discussing sales promotion, into the error of telling sales managers their business. This paper, therefore, avoids all discussion of the methods by which sales managers can apply the increased appropriation to increasing the effectiveness of their organizations.

The fact, however, that the sales manager is charged with the responsibility of wisely expending funds allocated to his department does not relieve the executive of the property from the responsibility of wisely allocating those funds. Under the head of sales promotion, therefore, it is the intent to urge upon the executives the desirability of at least considering the cost of establishing an inductive rate and of supplying the necessary sales activity to bring it before the public, as one.

The effectiveness of a sales campaign, however, is determined not alone by the attractiveness of the proposition the salesman has to offer, by the number of salesmen, nor by the incentive to the individual to urge his proposition upon the customer. The receptivity of the customer's mind to the approach of the individual salesman has an important bearing.

It may be argued by the executives of gas properties that if you have given a salesman a good inducement to increase the consumption of the customer, and an opportunity to show the customer that the increased consumption will result in a reduction of the average cost of all his service, the management has done enough.

It is trite to remark, however, that this is an age of advertising. It is, moreover, an age where each individual is striving to increase his scale of living and to live in a more and more modern and up-to-date way.

Because the gas business is the senior of the utility businesses, it is unfortunately subject to being thought of as the most old-fashioned of the utility businesses. This

opinion is a mass opinion and can only be changed by agencies of mass appeal. To convince the public, therefore, that gas service in a home is modern service; that no home is modern without gas service, and plenty of it, is pre-eminently the field of advertising.

In the light of the public's desire to improve its living standards, the receptivity of the customer to the salesman's approach will undoubtedly be increased to a great degree by the conviction that the proposition advanced by the salesman is one of modernization for the home. The customer must feel that the use of additional gas is a means of improving his living conditions—of increasing, if you please—the effectiveness and the fullness of the home life.

The advertising appropriation, therefore, must be considered along with the amount of money that is to be expended in improving the rate structure from a sales point of view, and in increasing the effectiveness of the sales force.

The functions of the rate expert, of the sales manager, and of the advertising man, are all essential to the promotion of gas sales. The methods to be pursued in the three individual fields are hardly within the determination, as to detail, of the executive of a gas property, but the executive cannot escape the responsibility for the coordination, both as to effort and finance, of these three activities.

The purpose of this paper has been to indicate how neither of these three factors can be neglected. If an attempt is made to promote sales by the use of any one of them, the effectiveness will be limited, if appreciable. If any one of them is overlooked, the maximum result can hardly be obtained. It is the old trite story of coordination, but it is a story always conceded in generalities, but less often considered as specific plans are formulated. Sales promotion is a point of view from which these three activities of rates, sales organization and advertising must be considered. And what of the results?

The sales of the gas industry are con-

stantly increasing. The efficiency of production improves. The average net return on investment is already increasing year by year. A time approaches when all the average gas companies will be earning a fair return on the property used in the public service. In some cases, this time is reached at the present moment. But the need for sales activity from the selfish point of view of the gas company does not decrease as the point of adequate return is approached. When this point is reached, it is possible to make a general reduction of the gas rate throughout the community served, affecting a majority, if not all, of the consumers.

Each time that this is done, the relative expenditure of the home for gas service is decreased. The percentage of the domestic budget allocated to the gas bill is lessened. If the gas bill is treated as a luxury, it becomes less of a luxury and more of a necessity. If it is already a necessity, it becomes one of less moment from a financial point of view.

We are today in an age of national prosperity. We may hope that it will continue forever, but we must face the fact that it may not. When recession may come, therefore, if our commodity is less of a factor in the household budget, our sales will suffer less than those of other household commodities. We will be placing ourselves in an increasingly stable position and will be promoting the reliability of our business from the point of view of the investor.

I conclude that this solution seems to constitute the greatest guaranty to the public that the gas business will be well run and fairly administered in the public interest. In entrenching our business more firmly financially, we will automatically be pursuing a policy which can only result in giving a greater value in service to the customer for the revenue he pays us. To this forward move of the gas business towards greater service to the public and greater security for the investor, sales promotion is the key.

Executives of gas companies, therefore, can well consider sales promotion as one of their chief functions. Any discussion of this

subject, however it may attempt to avoid them, will touch upon them if it does not enter into controversial subjects.

The fundamental fact to be considered, however, is that sales promotion is a matter of coordination between at least three functions of the business, and is, therefore, a prime responsibility of the executive. It is, moreover, a responsibility in the fulfillment of which the executive will improve at once the position of the investor and the position of the consumer.

If the Library of Congress Burns!

IF the Library of Congress should be burned and contemporary records destroyed," said the *New York Times*, August 18, "the antiquarian of the future might still be able to obtain a fairly comprehensive cross-section of American economic culture of the year 1929 by splitting open the cornerstone of the recently dedicated Department of Commerce Building in Washington."

Said antiquarian would find a summary of the gas business in the United States in tables and totals prepared by the Statistical Department of the American Gas Association.



The new tower of the Consolidated Gas Company of New York building has been equipped with powerful air beacons

Thirteen McCarter Medals Presented at Convention



Edward Donker



G. A. Ballinger



E. J. Fleming



M. H. Staulcup

AN interesting highlight of the evening meeting of the annual A. G. A. Convention, on Oct. 16, was the presentation of thirteen McCarter Medals for life-saving to employees of gas companies. Thomas N. McCarter, President of The Public Service Corporation of New Jersey, and donor of the medal, made the presentations personally.

Owing to the large number of McCarter awards to be made at the Convention, at the request of the Association that the unusually heavy program be not unduly extended, only those employees of the Consolidated Gas Co. of New York and The Brooklyn Union Gas Co. who were awarded McCarter Bars were present.

The McCarter Medal is one of the most prized awards that a gas man can win for life-saving. It is presented to those gas company employees who have saved human life from asphyxiation by gas through appli-



W. L. Webb



R. H. Fowers



F. M. Barker



Angelo Passero

cation of the prone pressure method of resuscitation.

Miss Elizabeth J. Fleming, a service clerk for the Consolidated Gas Company of New York, N. Y., was presented with the McCarter Medal for saving the life of a woman who was accidentally overcome with gas. Miss Fleming is the third woman to receive the Medal.

The McCarter Bar, awarded to those already possessing a McCarter Medal, was presented to John Joseph Hoey, of the Consolidated Gas Co. of New York. Hoey saved

the life of a woman by applying the prone pressure method for more than 30 minutes.

Angelo Passero also received the McCarter Bar for saving the life of a man accidentally overcome by gas in a doctor's office. Mr. Passero is an employee of the Consolidated Gas Co. of New York.

William J. Smith and Meredith H. Staulcup, employees of the Peoples Gas Company,



J. L. Sellin



J. J. Hoey



Matthew Maroney



Stephen Alphon

Glassboro, N. J., were awarded McCarter Medals for saving the lives of two women overcome with gas.

The McCarter Medal was presented to Russell R. Fowers, of the Westchester Lighting Co., Mt. Vernon, N. Y., for saving the life of a telephone company worker who was overcome by noxious gases in a manhole.

John Lazarus Sellin, of the Syracuse Lighting Co., Syracuse, N. Y., received his McCarter Medal for successful application of the prone pressure method of resuscitation in the case of a woman who was discovered apparently dead from the effects of carbon monoxide.

Two employees of The Peoples Gas Light and Coke Co., of Chicago, Ill., received McCarter Medals, and one employee of the company received the McCarter Bar at the convention session. George A. Ballinger and William L. Webb were the winners of the Medal, and Frank M. Barker was the recipient of the Bar. Mr. Barker had received the Medal some time ago for saving a life.

Stephen Alphon, a fitter with The Brooklyn Union Gas Co., Brooklyn, N. Y., was presented with the McCarter Medal and Bar for saving the lives of two people overcome by escaping gas. Both of these cases took place within one month. The McCarter Certificate was given to Herbert Clark for assisting Mr. Alphon in one of these cases.

Another winner of the McCarter Bar was Matthew Maroney, of The Brooklyn Union Gas Co., Brooklyn, N. Y. Mr. Maroney



W. J. Smith

saved the life of a girl by applying the prone pressure method of resuscitation. Emanuel Kubat assisted him, and for this received the McCarter Certificate.

Edward Donker, a fitter with The Brooklyn Union Gas Co., Brooklyn, N. Y., was presented with the McCarter Medal and Bar for performing two resuscitations. He first saved the life of a telephone company worker who was overcome while in a manhole, and he later saved the life of a woman who was found overcome with gas.

Our New Members

- Dybert, Fred W., Utica Gas & Electric Co., Utica, N. Y.
 Brendel, Samuel J., Samuel J. Brendel Companies, McKeesport, Pa.
 Wood, Albert H., Public Service Corp. of New Jersey, Newark, N. J.
 Tabler, Harry C., American Heater Corp., St. Louis, Mo.
 Lindquist, A. E., Robbins Publishing Co., New York City.
 Gaul, Howard A., North Carolina Gas Co., Reidsville, N. C.
 Campanitas, Henrique C., Public Service Electric & Gas Co., Harrison, N. J.
 Russell, C. H., United Natural Gas Co., Lewis Run, Pa.
 Peacock, T. E., The Arizona Power Company, Prescott, Ariz.
 Hands, Howard A., Lawrence Gas & Electric Co., Lawrence, Mass.
 Hogan, W. R., Public Service Electric & Gas Co., Newark, N. J.
 Zimmermann, R. Z., The United Gas Improvement Co., Philadelphia, Pa.
 Person, Charles W., The Koppers Company, Pittsburgh, Pa.

Closing Remarks at the 1929 Convention

By A. W. ROBERTSON



A. W. Robertson

WHEN I received the invitation to make a few remarks at the close of the American Gas Association 1929 convention, I hope I did not deceive myself by reading into it the friendly thought that, although I had definitely withdrawn from the gas industry and al-

lied myself with the electrical manufacturing industry, I have friends among the gas men. At least I so interpreted the invitation and accepted most willingly and gladly.

My early public utility experience was with the street railway industry, after which I branched into the electric, and finally to the natural gas industry; and, as my last love, it was perhaps my dearest. When I was trying to master the problems of the natural gas industry, there often came to me the thought that, although it all seemed simple, actually it was the most difficult business of the three to understand clearly.

To go back to the first thought—that one who is now identified with the electrical industry should be invited to make the closing remarks of this very successful convention: To me this exemplifies the confidence and strength of the Gas Business today. At the time when the electrical industry took the lighting business from the gas industry, there were grave fears as to the future of the gas industry, but that has long since passed. The gas industry has established a definite place for itself in our economic life, and, in the strength of its position, it can well afford to ask representatives of any business to appear before it with the full knowledge that we are not fighting one another and that the success of one does not mean the death of

the other—but that all of the utilities of the present age are necessary to our broad, economic life of today.

Some of us wonder sometimes why we have conventions; that is, we question whether or not the cost in time and money is justified. This year, I believe more than any other, stands out as a signal example of the benefits which may come from the gathering together in one place representatives from the same industry from the whole country. The high character of these representatives and the papers and discussions show that the convention has been taken seriously and no doubt great good will come from it.

Those who have attended the program of this convention know that the underlying theme of practically every speech and every committee report has been a scientific approach to the problem under discussion in the hope that all of the facts may be learned and from these may be found a solution and a happy ending.

The thought occurs to me that this so-called scientific spirit—this search for truth—this open-minded acceptance of facts—is typical of successful American business. Show us the most successful business over the years and I am certain we will find there a business controlled by a management which is most diligent after the facts—reviewing them with an open mind and from them learning the causes of failure as well as the reasons for success. This same scientific spirit which has been so in evidence all this week has not only profited the gas industry of the country greatly—making revolutionary changes in the uses of gas and in the rates, etc.—but the same spirit as applied to other situations in life has been followed with equal success. In medicine—in the study of disease—great progress has been made and more will follow. In chemistry, metallurgy, and allied branches of industry our world has been revolutionized—and is be-

Mr. Robertson is chairman of the board of the Westinghouse Electric and Manufacturing Co., Pittsburgh, Pa.

Presented at General Sessions, A. G. A. Convention, Atlantic City, N. J., Oct. 17.

ing revolutionized today. But for the developments in chemistry and metallurgy, under the urge of scientific research, none of the modern machines—aeroplanes, victrolas, automobiles, etc.—as we know them today—would be in existence, for every one of them is made of compositions and compounds and use chemicals which were unknown a few years ago.

So we may well say that this searching after truth—which has been the key-note of this convention—has rewarded modern business almost beyond belief.

The thought comes to me that this same open-minded search for truth—if applied to all of life's problems—would produce equal improvements. How marvelous it would be if we could apply the scientific principle to the making of our laws! How many useless and foolish laws we would be spared! How much more helpful laws we would get! Suppose diplomacy between Nations could be handled in a strictly scientific way so that the real advantages and disadvantages of tariffs, or standing armies and navies, passports, etc., could come under the scrutiny of true scientific investigation. There is no good reason why the prejudices of politics, government, and what-not, should not give way before scientific research to the lasting benefit of mankind the same as they have done in the gas industry or any other successful business.

How helpful it would be if we could have the light of scientific research on the problem of just how and where government can best function, and where and how business—so that the two could understand their respective spheres of activity and each function to the best interest of the public which they both serve. In this way neither one would get in the road of the other and our modern civilization would run that much more smoothly and that much less expensively.

It seems to me, as business men alive to the advantages of knowing the facts and then viewing them with an open mind, we must, so far as we can as citizens, attempt to get the political and civil world about us to

accept the same mental attitude of truth-seeking for the purpose of solving the various problems of our lives outside of business. If this could only be accomplished, we would find that the glories of the civilization of the present, with its release of countless millions from grinding toil due to the modern luxuries and improvements that spring from business, would be dwarfed in comparison to the happy, productive and useful lives which the citizens of tomorrow would live.

Many American Papers Planned for World Power Conference

THE gas industry will have an important place in the World Power Conference in Berlin next June. Alexander Forward, managing director of the A. G. A., is a member of the American Committee and a member of the Executive Committee on American Papers for that meeting.

The American Gas Association will contribute a paper, "The Economic Cycle of Gaseous Fuel," which has been referred to the Technical Section and the chairman, H. E. Bates, has agreed to prepare this important paper.

A paper, "Extension of Gas Service and Progress of Rate Making," will be contributed by the Commercial Section and the Committee on Rate Structure. Another, "Legislation and Regulation," is undertaken jointly by the American Gas Association and the National Electric Light Association, and W. J. Hagenah has been asked to prepare it.

The American Gas Association will also contribute a paper on "Transmission and Storage of Gaseous Fuel." This Association will be co-sponsor with the American Institute of Mining & Metallurgical Engineers on a paper, "The Coal Mining Industry as a Basis for Industrial Coal Supply," by Floyd W. Parsons.

"Special Training Courses for Employees by Corporations and Associations and Correlation with General School System," will be prepared jointly by the American Gas Association and the National Electric Light Association. E. B. Luce, of Baltimore, has agreed to write the part for the American Gas Association.

The statistical departments of the American Gas Association and the National Electric Light Association will present a joint paper on "Methods of Collection of Power and Gas Statistics in the United States." Paul Ryan has completed his work.

The Gas Company's Social Obligation and Economic Opportunity

By MISS LAURA CAUBLE, B.Sc., A.M.

FOOD borne disease has come under social control. However, there is one food substance which everyone needs, which you can never buy, of which you have no choice, or if you can afford to pay for it you may have to go a long way to get it. You must take it as it comes quickly; you cannot live normally two minutes without it. That food is the air you breathe. Growth and health throughout life are critically influenced by the air one breathes.

The pure air problem today is analagous to the pure food problem when Dr. Harvey Wiley set the program. A man requires about $5\frac{1}{2}$ lbs. of food, liquid and solid, for each 24 hours.

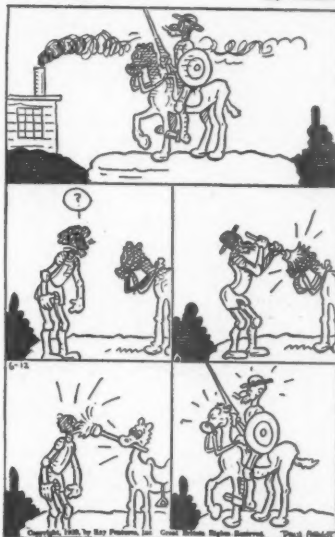
A man requires 2000 gallons of air or 34 lbs. each 24 hours. The need of sufficient air is always absolute. One is handicapped if he cannot get enough air. His blood is vitiated.

So also the dense smoke of cities irritates the respiratory passages and clogs the delicate apparatus. The ultra violet ray cannot reach the skin and do its part. We have not yet operated successfully on this cause.

The building code of New York City requires a minimum of 8 x 10 floor space, eight foot ceiling, with 10 per cent of window space as part of a provision for an adequate quantity of air for homes. Schools and public meeting places must supply a quantity in proportion to seating capacity. Little concerted effort on the part of homemakers,

DON KEY O. T.

By Arnot.



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What's funny about this?

organizations, engineers, or authorities has been made to safeguard the quality or purity of the vital air food or to create any research program, definite educational or sanitary measures to protect the air we breathe. Few homes or buildings have devices which filter the air. Engineers have produced clean plants and better systems, but a standardized smokeless construction is not yet determined.

There is no public sentiment which is stronger than law, upon which law enforcement must depend to protect the free air. We are not clean air conscious as we are pure milk conscious.

With the hazard of smoky, smoggy air besetting the development of aviation, we are growing air conscious.

Listen to the slogans and measure the change: "Breathe a deep breath." "Fill your lungs full of air." "Sleep with your windows open." "Play out in the open air." "Sleep out of doors in the air." "Live outdoors as much as possible." "Let the sunshine into your sleeping rooms." "Take a good sun bath."

Fresh air and sunshine! We cannot live without them. The problem of clean air has arisen with the growth of industrial cities and the use of coal as a fuel. Industries require power; homes must be heated.

The dust of streets, building operations, subway excavations, gases from automobiles, the smoke, cinders, soot, and gases from the chimneys of homes, apartments, and tall

Miss Cauble is chairman of the National Conference Board on Sanitation, New York, N. Y. Presented at General Sessions of A. G. A. Convention, Atlantic City, N. J., Oct. 16.

buildings, manufacturing plants, power plants, or any means of transportations using bituminous coal and oil are major contributing factors to the defiled air we are starving upon.

The irritating effect of smoke produces a catarrhal condition of the membranes of the nose, sinus, throat and lungs. Pneumonia, bronchitis, influenza, the common cold—air borne diseases! The most fatal in effects, the most expensive to employer and employees. It is said the common cold costs \$80,000,000 per annum.

From the total amount of bituminous coal used in New York City every day, it is estimated by the chief chemist of a great laundry supply house that 1200 tons of sulphuric acid are set free every twenty-four hours. That five parts in ten million will burn brown spots in wet wash—what is this H_2SO_4 doing to the respiratory tracts of those who live in the dark canyons of cities which are never free from it?

There is ordinarily a bank of smoke 2000 ft. high in New York. This is relatively true of any city which has up to now pictured its prosperity by the number of its smoky stacks. The cartoonist makes short shift of this antiquated slogan; you meet his satire even on the funny sheet. The chemists of the coal industry gave him a look into the laboratory and showed him that the carbon which makes the heat and power is probably the least valuable part of bituminous coal. He looked over the genealogy of coal—an interesting family

tree with the most impressive lineage, a storage of priceless wealth which has continually been blown to waste.

Figures of Manufacturer Show Growth of Industry

GAS companies and investors may find reason for optimistic outlook toward the future in the production figures of the various manufacturers of gas-burning appliances. There is also the happy corollary that sales organizations of all these manufacturers are working hard to sell these appliances.

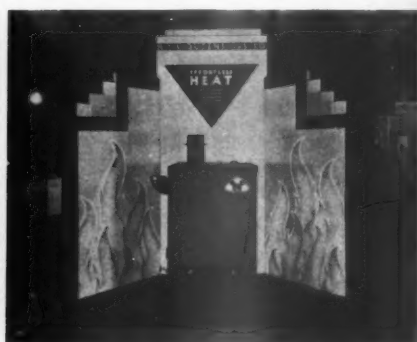
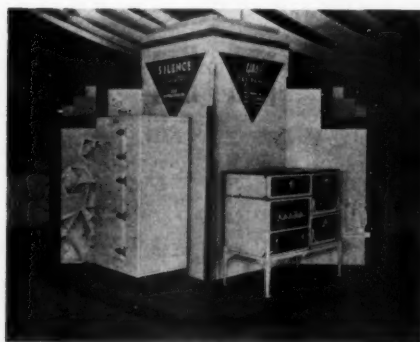
Of course this is not evenly distributed over the country, the communities where the best merchandising job is done getting the greater proportions. The best merchandising usually involves the gas company making a special rate for the house heating load which bulks next to the industrial load.

As an example of increased gas consumption which is coming to the gas companies, there are the August production figures of The Bryant Heater and Manufacturing Co. of Cleveland.

Consumers will pay approximately \$610,000 for the boilers and furnaces shipped during the month of August which, significantly, is the record month in the 25 years of business.

The Bryant company estimates, from previous records, that about 70 per cent of these will be installed in manufactured gas territory and 30 per cent in natural gas territory.

One month's production of one factory will make it possible for the gas companies to sell almost half a million dollars' worth of gas every year in excess of their present loads. When it is remembered that the other important boiler and furnace manufacturers and the other gas appliance manufacturers are also increasing the gas load every month, it is easy to see that the gas companies have cause for rejoicing.



The New York and Queens Gas Co. exhibited the gas refrigerator, the gas range, furnaces, and radiant heaters at the Queensborough Food Show, held from October 14 to 19

The Gas Industry and the Public

By HENRY C. SPURR



The public should, and in most cases does, realize that the public utilities render public service

SOME years ago these lines to gas men appeared in a newspaper and were later quoted in a Commission opinion in a gas case.

"But often we wonder
If the day shall come
When value received
We'll get for our 'mon'."

The writer wound up by asking:

"Will we ever get wise
To the gas man's game?"

There you have a popular impression of the gas industry in the early days of commission regulation. The idea was that you were engaged in some sort of a game the object of which was to get something from the public for which you did not return value received.

You were acknowledged to be able and smart. It was thought to be very hard for

even the best of the champions of the public to make much of a score against you.

This idea, like the unlucky number superstition, crops out once in a while even now. For your comfort, let me remind you that it does not apply to the gas industry alone. Nor is it confined to the public utility business. It is entertained with respect to many other business undertakings and professional services. We ourselves, individuals responsive to a sensitive conscience, seem to be about the only persons who really return value for value received.

Now, the fact is that no business could be built up on the theory of not giving value for value received. Take your own business. Your industry has made enormous strides in the last few years. You are expanding rapidly. Better days are ahead. You have been spoken of as a sleeping giant which has awakened. But you did not become a giant in a day. You developed from a very puny infant over a long course of years.

Presented at A. G. A. Convention, Atlantic City, N. J., Oct. 16.
Mr. Spurr is editor of Public Utilities Fortnightly.

You had no inheritance. What you have, you had to struggle for. You are a self-made giant. Although one of the oldest of our giants you are still growing and growing fast.

According to a bulletin just issued by your association you had 4,200,000 customers for manufactured gas alone in 1901 and sold 101,625,000 thousand cu.ft. of gas. In 1928 you had 11,841,000 customers and sold 494,830,000 cu.ft. of gas. The statistics show a stable progress and continued expansion in all phases of your business.

I saw a recent statement by Roger W. Babson that there are today 20,000 new uses of gas which were not known fifteen years ago. *But 20,000 new uses in 15 years!* To think of 20,000 uses for gas, to say nothing of new uses, staggers the imagination! Those 20,000 new uses for gas are undoubtedly beneficial uses.

Who brings these uses to the people?

You do.

How? By some sort of a game with stacked cards? By some sort of hocus focus by which you do not give value for value received?

Certainly not.

You could not do that as an economic proposition even if you were a great monopoly beyond the pale of regulation. You could not sell those new uses to the public—notice they are said to be new uses—unless the public were convinced they were worth what you ask for them. The poet wonders:

"If the day shall come
When value received
We'll get for our 'mon'."

Well, the public gets that now. It always has, notwithstanding the fact that back in 1829 gas was sold in New York City at \$9 a thousand cubic feet. The public will always have to get value received for its money from the gas industry or else the gas industry will be obliged to retire from the field, and coal, oil, electricity, or something else will come marching on to take its place.

Competition is always present. If the gas industry had kept on charging \$9 a thou-

sand, it would not be the giant it is today. No industry can grow without giving value for value received, and no industry can grow to such a size as the gas business has without giving much more value than value received. The gas industry has made the public much richer than it would have been without gas, notwithstanding the fact that you who are in the gas business have also been made richer.

Your size and prosperity are conclusive evidence of two facts: (1) That you have an essential service which the public needs, and (2) That in supplying that service you are giving full value for value received.

Economic laws would have prevented any great success in your business based on excessive charges. But in addition to that fact is the fact your industry has been under pretty strict regulation in many states for many years. This is a double guaranty that value must be given for value received. The public is protected both by economic laws and by laws enacted by legislatures.

Perhaps you have thought that the commissions have forced lower rates than they should. Perhaps the rate payers have thought commissions have not cut rates as much as they should. The answer to both of you is that the industry has prospered and that more and more persons are taking your service. At least no serious harm has resulted either to you or to the public from commission regulation. The fact is that under regulation—whether regulation had anything to do with it or not—you are better off than you were 15 years ago and so is the public.

The public is beginning to appreciate this. There is not so much talk as there once was about not getting value for value received. This old idea comes up to trouble you only occasionally.

You have done much and commission regulation has done much to bring about a better understanding between you and your customers. Aside from occasional disputes and losses of temper, your public relations are good. The public looks upon your announcements of new uses for gas not with apprehension but with enthusiastic approval.

The public hopes you will find a way to put the heating of houses within the means of all and that you can find new industrial uses for gas. It welcomes improvements in appliances and services.

The public appreciates, of course, the advantages which come from the various uses to which gas can be put, but it does not often stop to think of the extent to which its welfare is affected by gas service. I am sure a good many patrons of the gas industry believe that the benefit which comes from gas ends with the use they and others make of it. Others apparently think that, because they have to pay money for this service, the gas industry gets all of the benefit. But as the customer has the service and pays his money to the company, this is usually regarded as a two-sided benefit, a benefit to both the consumer and the company. But this two-sided benefit is thought to be all there is to the transaction as far as public welfare is concerned.

There is much more to it than that. In the first place the company does not get the money paid for the service; that is to say, it does not get all of it. It gets only a small percentage. Let us consider manufactured gas for the purpose of illustration.

Manufactured gas is produced from coal. The coal has to be mined and carried to the place where the gas is made. Part of the money paid by the customers of the gas company must therefore be diverted from that company to pay the owners of the coal, and part of that money again turned aside so as to reach the pockets of the miners who have dug up the coal. Part of the money paid for gas goes to the railroad which carries the coal and to the employees who work for that road. The owners of the mine, the owners of the railroad, and their employees, although they use none of the company's gas, are interested in the prosperity of your business and receive an indirect benefit from your service.

Part of the money the users of gas pay for the service goes to the employees of the gas company. Part goes to those who fur-

nish materials and supplies other than coal. Part goes for taxes.

Let us follow this a little further. The money of the gas customers which goes to the owners of the mine and railroad and to their employees is used to supply their needs. Therefore the persons with whom they trade also receive an indirect benefit from gas service.

The same is true of that part of the gas consumers' money which goes to the employees of the gas company. Not only do they receive a benefit from gas service but so also do persons with whom the employees trade.

That part of the consumers' money which comes under the head of taxes is used for the support of the government. There must be policemen and firemen. So the service rendered by gas companies helps to support not only their own employees and other industrial employees but the city policemen and firemen as well as other local officials.

That small part of the money which gas consumers have to pay for the service which goes to the stockholders is in turn devoted to a public good. Stockholders, like other individuals, have to have food, clothing, and shelter, and amusements. Those who furnish these are therefore paid in part from gas customers' money and so are benefited by and interested in the prosperity of the gas business whether they use any gas or not.

If, after buying what they need for their personal use, the stockholders have anything left, that money is either reinvested by them directly or put in banks for the bankers to reinvest for them. Somebody gets the benefit of that use also. So one might go much further in tracing the indirect public benefits which come from your service. Not only are the millions of customers who use your gas benefited by the service, but millions of others. There is every reason, therefore, why the public should appreciate every effort you make toward the further expansion of your business.

And the public, let me repeat, in spite of occasional misunderstandings has today a very friendly feeling toward you men and

women in the gas business. It applauds your achievements. It wishes you well in your program of development.

Unfortunately, however, when you awoke to the possibilities of the gas business you found you were operating under unscientific rate schedules. As a result you were dead-heading a lot of your service. You were carrying an astonishing number of persons at less than cost. No business could last long if it supplied all of its service at a loss. It might get along by losing money on part of its customers if it could overcharge enough paying customers to make up that loss. But the larger the percentage of dead-head service, the more difficult it is to expand the business, and expansion of your business is, of course, a good thing both for you and the public.

The minimum charge tacked on to a flat rate schedule was a crude effort to eliminate dead-head or partially free service. Then came the service charge and then the three-part rate, and the various forms of block schedules designed to get rid of discriminatory charges and to make all customers pay for their keep.

The public, however, has been very sensitive about changes in the forms of rate schedules. Judging from the arguments of the opponents of these changes they have not understood their economic benefit to the public. You can scarcely blame them for this. You apparently did not yourselves understand the significance of scientific rate schedules for a good many years.

The state public service commissions have agreed to the fairness of the service charge. In a very few instances, however, they have refused to allow it—not on the ground that it is not proper—but for the reason that the public, failing to understand it, was opposed to such a charge. In New York the legislature passed a statute forbidding a service charge. But you have not been discouraged even in that state in your efforts to reform discriminatory rate schedules.

You have found a good name for certain new forms of schedules. You call them promotional rates, and correctly so, because that is what they are. This has been the recent

outstanding development in gas rate making. You will find the commissions favorable to these rates in principle, although they may not accept the schedules just as you yourselves would make them.

In a recent New Jersey case the commission pointed out the discriminatory character of rates by which some customers are furnished service at a loss and others overcharged. Such rates, the commission said, have serious consequences for the company, as under modern social and industrial conditions the gas industry has practically lost its lighting business and is dependent largely on the sale of gas for fuel. Here it is in competition with other fuels such as oil and coal. Therefore, the commission concluded that the cost of gas must be placed more nearly on a competitive basis in order to prevent loss of business and create an additional demand for gas for cooking, water heating, house heating, and industrial purposes so that the future stability of the industry may be assured.

There has been some controversy during the last year over the propriety of minimum charges and service charges. But whether a minimum charge, a service charge, or some sort of block rate not containing a special charge may seem best to this or that commission, it must be encouraging to your industry to note that there has been a uniform recognition of the desirability of framing rate schedules in such a way as to compel the small users of gas to meet the cost of carrying them, and in such a way as to stimulate gas consumption by making more attractive rates for the actual use and especially for larger use of gas.

For the sake of friendly public relations it is necessary that the rate payers as well as the commissions understand the discriminatory nature of the old rate schedules and the advantages of the new.

The public is fair. It would not be so foolish as to oppose a public benefit, if it knew it. Therefore, considerable pains must be taken to show the public why dead-head service is bad for everybody except those who receive it.

(Continued on page 717)

A Century of Industrial and Social Progress

By THEODORE G. RISLEY

PROFESSOR DE GIBBINS, in his celebrated work, "Industry in England," aptly says: "The history of industry is the history of civilization." The economic development of a country fundamentally affects and influences its industrial, social, and political destiny.

Walpole, in his book, "Land of Home Rule," fitly compresses the record of mankind's achievement into this sentence: "The progress of mankind is written in the history of its tools." There are few facts of importance in a nation's history that have not some relation to its industrial growth, and this is particularly true of the last two centuries.

Some economic writers now refer to the period between the close of the French Revolution and the commencement of the World War as the Nineteenth Century, because it constitutes a distinct period of marvelous industrial and social changes. It ushered in momentous inventions, which developed the use of mechanical powers that have been applied to manufacturing, transportation, mining and agriculture—inventions which have changed nearly all methods of production and distribution and wonderfully multiplied man's productive capacity, as well as enlarging his liberty, bettering his domestic relations, improving his sanitary conditions, and in every way enhancing his opportunities for enlightenment and happiness.

A century ago nearly all machines were



The gas industry has contributed greatly to social and economic progress—the gas range is but one instrument through which this contribution has been made

made of wood and operated by hand or water power. The hand was the chief instrument and human muscles the principal motive power of industry. With the application of steam to industry machines were made of iron, and coal became the fuel with which to drive them; thus was developed two of the greatest of our industries, manufacturing of iron and the mining of coal. Machines are now applied to nearly every form of production in civilized countries. Pogue, the industrial statistician, says that

it would require the hand power of three billion men working ten hours daily to produce what machinery produces daily in the United States. It has even been estimated by experts that it would require the labor of twenty men to produce by hand in a day what the average American now consumes, uses and enjoys in the way of social service daily.

The Value of Manufactured Products

Inventions and the use of machines have transformed the United States within the last generation from an agricultural to an industrial country. The census of manufactures for the year 1927 shows that the products of American factories during that year reached the tremendous value of \$62,721,000,000. This wealth was created by 191,666 factories, the total operating expenses of which aggregated forty-six billion dollars. We are now producing, not only the necessities and comforts, but even the luxuries of life, at a cost within the reach of nearly all our people who are thus enabled

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Judge Risley is Assistant Attorney General, Washington, D. C.

to live better than the rich and powerful did a century ago.

It is the ability to think and to reason from effect to cause that has made us the leading industrial country of the world. Our workers are the most prosperous, as well as the best paid, body of toilers in all history. No other workmen have ever applied their skill so effectually. They know that machine power would be made to do the work of muscle. They no longer wage war against inventions or resist the application of new machinery to work, as did the laborers of a hundred years ago. They know that the more machines produced the more fully can they supply their wants, that the cost of the articles they use and consume will be greatly reduced, and that more people can buy them, thus giving increased employment to labor. The diminished cost of the production of a commodity always augments the demand for it and amplifies the need for labor.

Efficiency of American Laborers

For years the American laborer has been recognized as the most efficient producer in the world, and this is accounted for to a very considerable extent by reason of the improved machinery with which he has operated. Estimates of the increased efficiency of our laborers show that in the last ten years the increase has been 53.5 per cent. The Bureau of Labor Statistics lately studied eleven typical industries and found that since 1914 their average production has increased sixty-eight per cent. In the past seven years American productivity as a whole has increased about forty per cent. It is due largely to inventions and the application of improved machinery that the masses of our people today are able to live in such happiness and comfort as was never before enjoyed by any people. Without these agencies our standards of living would be very much as they were a hundred years ago. It is the conquest of science, education and co-operation over ignorance, selfishness and prejudice. Our marvelous mechanical and industrial forces have become so highly developed and efficient in the hands of skilled and intelligent workmen that we have be-

come practically industrially self-sufficient. We no longer need to depend upon an influx of submerged toilers of the old world to help in the operation of our industries. The fact that wages in the last ten years have increased nearly 100 per cent in this country is due to the initiative, loyalty, and capability of American labor.

Displacement of Labor by Machines

In the early history of the Nineteenth Century there was bitter hostility on the part of laboring people to the application of new machines in industry. They conscientiously believed that the inventions of Hargreve, Crompton, Arkwright, Boulton, and others would so displace hand laborers that they would be menaced with starvation. Seamstresses shuddered when sewing machines came into use because they were afraid that they would lose their employment. The belief that new inventions are detrimental to labor is, on the whole, an economic fallacy, because of the fact that nearly every invention is the parent of some other invention or use that creates new wants and develops new enterprises, thus absorbing largely labor that has been displaced.

Two Types of Machines

There are two classes of machines that affect labor: One type that creates and supplies a new want on the part of the people, thus creating new demands for labor, and especially skilled labor, in order to supply such new demands and newly created markets for its product. Among this type of inventions are the electric light, the telephone, moving pictures, and, particularly, the automobile.

The development of the automobile industry is the most prodigious single factor in the history of American industry. Since it came into general use more than sixty billion dollars have been expended in this industry. It now employs, either directly or indirectly, three and a half million persons, to whom it is paying in wages approximately six billion dollars a year. These main industries have resulted in the development of hundreds of subsidiary industries



A view of the cooking booth at the A. G. A. exhibition. This booth was extremely popular all during convention week

which are continuously multiplying the needs and wants of the people, thereby daily increasing the opportunities for employment.

The displacement of workers by machinery in the last few years, however, has become quite a serious matter and is engaging the earnest consideration of economists and far-sighted labor leaders, not only in this country but in European countries. It is a problem that must be met in order to maintain the general and prosperous employment of American laborers. It would be folly to contemplate any limitations on the inventive genius of man, or the curtailment of the productive capacity of improved machines, and the problem must be solved by a program that will provide ways and means for taking up the unemployed until readjustment in industry takes up the slack thus produced in employment.

When a man loses his employment, for the time being he usually loses everything, and there is no more important duty devolving upon society than to provide ways and means of employment for its members and at such wages as will enable them to maintain, not only a comfortable standard of living, but to increase their opportunities for education, recreation and to provide for their families, and to lay up a competency against the hazards and uncertainties of old age.

Loss Caused by Unemployment

It is estimated that the wage loss due to unemployment during the years 1921, 1922,

and 1923 approximated \$8,000,000,000. If labor had been employed during this period, it would have largely spent this vast sum for food, clothing and other necessities and comforts of life, thereby greatly enhancing production and profits which would have quickened the country's prosperity. This loss in prospective wages reduced profits, retarded business, and resulted in privation and failures because of a shortage of profitable consumers. Billions of dollars' worth of goods that were sorely needed by consumers were not produced, profits were not made, and business languished because labor was not prosperous. Stable employment and good wages for labor mean gains and profits for business and the two are necessary to maintain prosperity.

Industrial Safety

Modern industry is a wonderfully complex machine. The introduction of labor-saving devices, with their multiplied processes now employing electrical energy in innumerable forms, high speed machines, many kinds of dangerous mechanical and other agencies, contain within themselves innumerable lurking dangers and, while they are productive of immeasurable benefits to mankind, yet they are also the efficient causes of the destruction of human life and material waste.

Secretary Davis estimates that the annual cost of industrial accidents to our country is \$1,000,000,000. The time has now come

when industry is compelled to consider the waste of human life and limb as being of vastly greater importance than its material waste. The great number of lives taken and the sum of human misery resulting from industrial accidents have resulted in the formation of comprehensive programs for the prevention of accidental deaths and injuries in industry and the continued promotion of plans to enhance the safety and preserve the health of laborers. Some of our great industrial enterprises, working under the operation of preventive programs, have reduced their accident rates as much as fifty per cent. These programs were based on statistics and they must depend upon statistical information for their successful and continued operation.

Safety museums have proved a valuable educational agency in the prevention of accidents, both in Europe and in the United States. Europe, however, has gone far ahead of us in this scheme of accident prevention. These museums not only exhibit and operate many kinds of machines and mechanical appliances for the purpose of illustrating the latent dangers in the use of them, but they also demonstrate and explain the designs and methods of manufacturing such devices. They also secure and furnish accurate information regarding safety devices and the methods of their operation.

The National Safety Council held its eighteenth annual congress in Chicago in September. One of the most important services to industry rendered by the National Safety Council is the collection of facts concerning industrial accidents. Each year the number of companies reporting to the council has increased—2557 plants, covering 1,828,186 employees, gave their accident experience in 1928 as against 1725 plants in 1926. The accident frequency rate in the plants has dropped from 31.87 in 1926 to 24.52 in 1928, a decrease of about 23 per cent. The severity rate during the same period has decreased about 19 per cent. According to the most complete records available, accidents took the lives of approximately 96,000 persons in 1928. This repre-

sents an increase of 3.1 per cent over 1927, when 93,073 persons met accidental death according to the records of the United States Census Bureau. This also means an increase over 1927 in the death rate per 100,000 population. It is estimated that 27,500 deaths were due to motor vehicle accidents in 1926; 24,000 to home accidents; 24,000 to industrial accidents; and 20,000 accidental deaths in public places other than on streets and highways, and non-fatal injuries probably reached about 3,250,000.

The American Gas Association makes the safety of its employees, and also the public, one of its outstanding purposes. Its committee on accident prevention makes extensive and comprehensive studies, in conjunction with its subcommittees, of the subject of accident prevention, and the results of these studies and researches are reported at its annual conventions. The results of its activities in this respect are shown by the records of the National Safety Council and they show that from 1926 to 1928 the lost time accidents per million hours of work in the gas industry were reduced thirty-four per cent. This is a more rapid reduction than in the combined industries of the United States, in which the reduction was twenty-six per cent in the same period.

Conservation

Conservation is an old subject. Today most of our important natural resources, including natural gas, are guarded carefully and used economically. With the problem of conserving the material resources on the way to solution, there is the allied problem of the present day in the conservation of human effort and labor in the homes of the nation. The public utilities, and especially the gas industry, are striving to extend this movement to the American home, so that the vital energies so often wasted today can be applied to more fruitful work and more important duties.

The industry occupies a vital place in the economic and industrial set-up of the United States. It holds a trust which can countenance no violation. To supply the homes of

America with a vital service is its job—and to do this efficiently and economically it needs to keep the industry on the same high plane which it is today. President Hoover has stressed public attention to the importance of the American home. Surely I do not need to dwell at length on the important place which the gas industry occupies in serving homes with gas service.

President Hoover, when he was Secretary of Commerce, sent the following communication to the American Gas Association at its convention of 1926:

"The many activities of the Association looking toward greater stability of the industry, the elimination of waste and improvements in its methods and processes certainly commend it as one of the outstanding efforts of American industry. I am particularly interested in the results achieved in the direction of standardization. The cooperation between your association and this Department through the Bureaus of Standards and Mines and other branches of the Department, has been a relationship of constant productive results and great personal satisfaction to me. It represents not only that fine cooperation which can be brought about within an industry through such an Association as yours, but also the cooperation which can be brought about by the government with industry in a spirit of helpfulness rather than a spirit of destruction."

Industrial Peace

The last few years have been unusually free from labor disturbances, such as strikes, lock-outs, and labor disputes, and this of itself has enormously contributed to our material prosperity. Nearly all strikes and lock-outs are characterized by some local phase or peculiar features which cannot be settled by any established rules or legal procedure. They require, for their proper handling, experience, sound judgment, mutuality, and fair dealing. Nearly all such disturbances are the results of misunderstanding on the part of employees and employers and when fully and frankly submitted to fair and experienced representatives of both sides for consideration a reasonable and satisfactory adjustment can be effected. The Conciliation Service of the Department of Labor has been, and is, a most effectual medium of successful negotiation in such matters and

its results have been of incalculable value to both labor and capital. During the fiscal year 1926 the United States Conciliation Service participated in 551 industrial disputes, strikes, threatened strikes and lock-outs. Of these, the Commissioners of Conciliation were successful in securing settlement in 12 cases and in a great number of other cases they rendered valuable advice and assistance in clearing up the situations without participating in the disputes. It is certainly encouraging to know that so many employers and employees interested in these controversies have become so heartily in accord with the principles of arbitration and the purposes of conciliation, and are ready to join hands around the council table in sincere efforts to obviate the staggering losses in wages and capital and to prevent the hardship and bitterness that has characterized so many of the great labor disputes in the past, resulting in disaster and suffering to tens of thousands of our people. The growing spirit of patience and forbearance now exhibited in labor controversies promises well for justice, stability, and the maintenance of our industrial prosperity.

Business Ethics

Confidence is the foundation of credit and since commerce is largely based on credit there should be a feeling of mutual confidence between buyers and sellers.

The national association of credit men and other business organizations, realizing the importance of this fact, have formulated and adopted rules for the control of commercial dealings which are recognized as canons of commercial ethics. Business should have a standard of ideals as to methods and service which should obtain in the practices of business men.

With the higher standards of business now generally employed by reputable men there is growing up a realization that there should not only be fair dealing but the will to render service to the public and the State and that there should be a consciousness of mutuality that begets confidence in the good faith of all interchanges in business life.

We now have more than 14,000 industrial periodicals published in the United States. They are mainly devoted to trade and merchandising and have a very wide and influential range of readers. They have not only a commercial but an educational purpose and are proficient agents in teaching young business people the value of observing approved business ethics and pointing out those practices which are condemned by the code of commercial standards. The adoption and promulgation of ethical rules for the transaction of business by the credit associations of the United States is elevating the standards of business practice and will redound to the economic and social advantage of the whole country.

We are coming to realize that education can have no higher purpose than the training of our people for useful, intelligent and patriotic citizenship. The masses of our people need to know more about our Government and the administrative processes of the nation. The public should have a more practical understanding of the methods by which the great departments and bureaus of the Government operate and of the essential qualifications of those who are employed to perform its administrative and ministerial duties. It is a service that requires moral rectitude, efficiency, and devotion to the public welfare.

Mechanical Manikins Demonstrate Prone Pressure Method of Artificial Respiration

THE dummies or "robots" shown in the accompanying photograph were constructed at the Bartlesville Petroleum Experiment Station of the U. S. Bureau of Mines for the purpose of demonstrating the Schaeffer method of artificial respiration.

The dummies are life size corresponding approximately to that of the average man.

The complete model represents two oil field or refinery workers, one of whom has been asphyxiated. The other figure represents a first-aid man who is endeavoring to save the victim's life by administering artificial respiration.

The mechanism of the model is completely

concealed and is operated by a small electric motor through a reducing gear.

The model is not only interesting from a mechanical standpoint, but also the art of administering artificial respiration can be learned from this model. The position of the patient, the position of the operator, and the movements and timing of the operator are all correct according to the approved practice as given in the U. S. Bureau of Mines Manual of First Aid Instruction.

This model was on display in the Bureau of Mines booth in the Scientific Building throughout the International Petroleum Exposition, held at Tulsa, Oklahoma, from October 5 to 12, inclusive.



The mechanical manikins demonstrate prone pressure

Why Gas Companies Advertise

By WILLIAM H. HODGE

THE American Gas Association is to be congratulated upon the forward-looking spirit which caused it to give particular attention to the subject of advertising—as evidenced by the existence of the Publicity and Advertising Section. If anyone is interested in developing the market for almost any product in this day and age, neglect of advertising is nothing short of folly.

The notion that advertising adds to the price of a product is still a persistent one. The sophistry that utility companies advertise in the newspapers to insidiously influence editorial opinion is still advanced by those anxious to tear down these industries. Both are fallacies and as fallacies should be attacked at every opportunity.

It is common knowledge that the lowest priced articles in respective classes are the ones most largely advertised. Whether it is soap, shoes, automobiles or gas, this is generally true. Mass production of sales *must* use advertising. It is a contrast between popular and class appeal. Compare the Chevrolet and the Rolls-Royce.

Mass Production

About the second example of mass production in the modern world was the gas industry. The first was water supply. In the gas plant the engineers assembled in one place operations replacing activities formerly isolated in homes, stores and factories. With the aid of distribution systems they substituted the results of mass production for the results of individual production.

The economic principle was sound simply because increasing volume of production and greater use of the investment over more hours per day and days per year progressively brought about lower costs of production per cubic foot of gas. If the rule had been the

other way, the gas business would not have flourished and its step-child, the electricity supply industry, never would have started. These two industries showed the way to modern industrialists, such as Mr. Ford. They paved the way for what has become known as the great American principle of industrialism.

All this being true, and it being granted that mass production and distribution are absolutely vital both to the widest possible extension of the service and the progressive lowering of cost and price, how can it be contended that gas and electric companies should not advertise? Here is a situation directly and seriously affecting at least 65 per cent of the people of this country wherein the success of mass distribution is dependent upon the success of mass appeal, and a speaker is invited on your program to explain why gas companies should advertise.

The Charge Is One Against Newspapers as Well as Public Utilities

Of course, the desire to have such a discussion does not come from within the industry, but is the outgrowth of the efforts of some newspapers to make it appear that the advertising expenditures of the utilities are largely in the nature of bribes for the purpose of securing favorable treatment from newspaper publishers and editors.

These misrepresentations are a challenge, not only to the utility managers but to the integrity of newspaper publishers and editors. They are serious but they are not true. Such charges rest on nothing more substantial than suggestions from individuals connected with utilities that more advertising should be done, coupled with the opinion that such a course would help toward better editorial opinion. Also upon a few foolish letters and remarks by men speaking their own thoughts, and not representative of any substantial part of the whole industry.

Mr. Hodge is vice-president of the Byllesby Engineering & Management Co., Chicago, Ill.
Presented at Publicity and Advertising Section meeting, A. G. A. Convention, Atlantic City, N. J., Oct. 16.

GAS RANGES



**The United Gas
Improvement Company
Philadelphia**

**You won't be late with a
Gas Heater in your Garage**



**Heat your Garage
with
Gas**
the Better Way

Coming to **Trunking - 130
Station W-2 - W-2A**
at New Market Street for the Automobile

Very gas appliances may be purchased on easy terms

THE GAS INDUSTRY OF NEW ENGLAND
OF WHICH YOUR OWN GAS COMPANY IS A PART

*For many years the gas industry has advertised
—but never to influence editorial opinion*

Measured against the facts as they exist and against the reputable part played by skillful advertising in developing the utilities with unprecedented rapidity, the so-called evidence on which these attacks are based is something less than inconsequential. It is in fact puerile, and this is why I say that some newspapers have set up a picture so distorted and false that it is entitled to no standing at all.

The demagogues devoting themselves to the utilities would like to have every editor feel that his readers believed him bought if his paper carried gas or electric company advertising. They would cheerfully deprive these industries of the right to advertise at all, if they dared to propose such a thing. Meanwhile they sow what suspicion they can in the hopes that the utilities will be discouraged from advertising, and the publishers will be afraid to solicit such business.

Tactics of this character are powerless against integrity and backbone, and neither the newspaper publishers nor the utility man-

agers of this country are conspicuously deficient in these particulars. While the immediate effect has been to retard utilities advertising, in my opinion, in the long run it will have no appreciable effect upon the effort of the utilities to employ advertising to the best economic advantage.

According to information supplied by the A. G. A., careful estimates show that approximately \$2,500,000 was spent for gas company advertising in the year 1928. This represented a percentage of 0.6 of the total gross operating revenues of the industry. The amount spent for advertising space in the newspapers is estimated at about \$1,400,000 or 56 per cent of the total advertising expenditures. There are about 14,500 newspapers in the United States. Assuming that only half of them are published in gas company territory this would mean an annual advertising expenditure of \$190, which seems a pretty low price for the alleged sale of editorial integrity.

It may be interesting to compare the ad-

vertising expenditures of the electric light and power companies with those of the gas industry. Estimates which I have made indicate that the total advertising expenditures of electric light and power companies in 1928 amounted to about \$13,000,000, or 0.68 per cent of the gross revenues. You will observe that this percentage of gross revenues is only 0.08 per cent greater than the percentage spent by the gas companies. In other words, the two industries are not far apart in relative advertising effort.

The proportion of total advertising spent by the electric light and power companies for newspaper advertising space was about \$8,400,000 or 64 per cent of the whole. The remainder went for direct-by-mail, outdoor, poster, radio and other mediums of advertising. In the gas business it would appear that about 53 per cent of advertising expenditures is for merchandising appliances, while in the electric industry about 44 per cent is spent for this purpose.

The fact that a large part of both gas and electric advertising is done through mediums other than newspapers in itself shows how these industries regard advertising effort as a necessity in building up the business. No one would consider the employment of outdoor advertising an effort to bribe the outdoor advertising industry, or the use of direct-by-mail advertising as an attempt to corrupt the Post Office Department.

The total of both gas and electric advertising in the newspapers of the United States in 1928—an estimated sum of \$9,800,000—is a long ways short of the \$38,000,000 which it was charged the electric industry proposed to spend over the period of one year for the alleged purpose of “influencing editorial opinion.”

There is one way that utilities advertising may influence editorial opinion in a most legitimate manner. That is by the influence of the facts themselves in the advertising aided by the manner in which they are presented. The object of all advertising is to have an influence on the minds of people, and if the advertising itself is honest, there can be no more harm in the conviction it

carries to the editor's mind, than its appeal to any other mind.

It is interesting to compare the percentage of gross operating revenues spent for advertising by the gas and electric utilities with those of various other industries. Figures compiled by the Dartnell Corporation, a statistical and reporting agency, for the year 1928, afford this comparison. The following percentages compare with 0.6 for the gas industry and 0.68 for the electric light and power industry, and are as follows:

Percentage of Gross Sales Invested in Advertising by Various Industries

Auto Accessories.....	6.19%
Autos and Trucks.....	2.16
Building Materials.....	5.70
Cigar Manufacturers.....	7.60
Men's Clothing.....	2.25
Women's Clothing.....	3.10
Confectionery.....	5.87
Electrical Appliances.....	7.50
Financial.....	.58
Food Products.....	8.75
Furniture.....	4.70
Hardware.....	3.46
Jewelry.....	11.00
Laundry Equipment.....	8.27
Mail Order Houses.....	15.30
Paint and Varnish.....	2.81
Fountain Pens.....	12.55
Radio.....	7.30
Proprietary Medicines.....	27.25
Tires.....	2.04
Schools and Colleges.....	10.40
Toys.....	5.60
Wholesalers.....	2.19

Retail Groups

Department Stores.....	3.67
Grocery Stores.....	1.83
Drug Stores.....	2.76
Men's Furnishings.....	3.16
Hardware Stores.....	1.12
Furniture Stores.....	3.72
Lumber Dealers.....	.30
Shoe Stores.....	2.65
Jewelry Stores.....	3.10

If there is anything wrong, morally or commercially, about gas company advertising today, it is simply its inadequacy. In other words, there is not enough of it being done. The industry can employ to advantage advertising in its various forms to a much greater extent than is the case at present. If this were done, the pace of development would be accelerated, the maximum

(Continued on page 717)

Practical Versus Theoretical Gas Rates

By F. C. HAMILTON

THE title of this paper might incline one to believe that there ought to be a difference between the practical gas rate and the theoretical gas rate. It is not desired to leave any such impression, but it was my hope that I might assist somewhat in pointing out practical ways and means of securing a rate as theoretically correct as can be secured with the present prejudices in the minds of public officials and a certain portion of the public itself.

I have no intention of decrying a careful analysis and cost allocation as a basis for arriving at a rate which will most fairly distribute the costs of rendering service among customers so that there shall be charged to each customer those costs he causes.

However, my experience leads me to believe it is possible to present a rate once you have figured out what it shall be without explaining all of the detailed work back of your choice, and that to leave out the details will facilitate the getting approval of such a rate.

I will also attempt to give some specific examples of the difficulties which you may reasonably expect in presenting a detailed cost analysis.

Since from time to time various people get different understandings from the current use of names for rate forms, I want to here define the terms as I shall use them.

A flat rate to me means the old time rate of \$5 or \$10 per month for gas service, which was in use prior to the installation of meters, which did not vary with either the consumption or demand of a particular customer.

A straight meter rate is a rate per thousand cubic feet which does not vary when applied to either the first thousand or fifth thousand feet the customer may consume in a given month.

The block rate—A rate which charges a

price per thousand for the first unit of consumption within a month and lesser rates for additional blocks of consumption.

The customer charge rate—One in which a certain amount is charged irrespective of any consumption, and in which the consumption itself may be charged for by the straight meter rate or the block rate method.

One word more in explanation. Opponents of progress in rate structures take great satisfaction in trying to prove that a rate is not theoretically fair as between individual customers, and some of the advocates of the proper form of rates seem to me to be unduly timid in meeting this sort of criticism.

No rate structure can ever be absolutely just. No company with which I am familiar is so small as to permit one instantaneously to make an accurate valuation and accurate set-up of operating expenses and revenues and present them to a rate tribunal, get a decision, and put the rate into effect. All of the figures will probably be at least one month out of date as of the instant they are presented and very likely at least a month more will pass after presentation before a decision can possibly be obtained and the rate put into effect even in the smallest company.

It is obvious, of course, that when the rate does go into effect there have been changes in salaries and wages; changes in the cost of gas supply; customers added or lost; maintenance expenses either up or down; and that, therefore, to a small degree the rate must at the time it is installed be unfair to either the customers or the company.

This, to my notion, is no criticism of the rate because we are doing business in a world of changes and no accuracy of this kind can ever be attained; nor is there any reason to desire it.

Next—having located your source of supply for your distribution system it is perfectly obvious that the customer living nearest that source of supply uses less of your distribution system than does the customer farthest away from that source within the

Mr. Hamilton is with Henry L. Doherty & Co., New York, N. Y.
Presented at Natural Gas Department meeting, A. G. A. Convention, Atlantic City, N. J., Oct. 15.

same city. It would be impossible to take into consideration this difference in investment merely from the standpoint of the cost of figuring the rate, and it would also be impolitic. It is only another of the discriminations of any rate for which there need be no apology.

Many people forget that the law allows discrimination and only prohibits "unjust discrimination." In the practical presentation of a case my feeling has been that if I were to attempt to present a detailed allocation of cost as the background of a rate which I was advocating, I would lay myself open to criticism from the opponents of any change, on items the allocation of which fell not under the prohibition of the law but which were similar to the two necessarily discriminatory features which I have cited above.

To get to some of those items let us start with the progress of rates.

First, we had the flat rate. Very shortly it was perfectly obvious that the flat rate when applied to all customers within a town charged those customers who had small use for gas more than the costs they created and permitted those customers with a large use to get their supply for less than the costs which they created, provided the rate was compensatory as a whole to the company. Naturally after its installation you lost the customers to whom you charged a prohibitive or non-competitive price. In losing these customers and the revenue from them, you must raise the rate which immediately threw another group of small customers into the block that could secure their service at a lesser cost in another manner.

We then went to the straight meter rate to correct this situation. Provided you made a compensatory rate you charged John Jones, who had a one and one-half inch service and 5-light meter and who used 6,000 cubic feet of gas per month, more than the costs he created, or you charged Bill Smith, next door, who had the same type of service and meter and who only used 500 cubic feet of gas, less than the costs which he created.

The third progressive step was the block rate. By putting a higher charge for the first thousand feet shown by the meter; a smaller

charge, for instance, for each of the next two thousand feet and smaller still for the next seven thousand feet, you obviated some of the discriminations that appeared in the straight meter rate. The amount of discrimination which you eliminated was entirely dependent on the accuracy in computing the costs which were entirely independent of the amount of gas supplied. By that I mean those costs in the way of return, taxes, and depreciation on the investment made necessary by the running of a service, the installation of a meter, and the providing of sufficient distribution capacity to take care of that additional customer; also the cost of the opening and maintaining of an account on the books for that customer, which includes meter reading and other similar items.

All of these costs were created prior to the time when the customer had been supplied with any gas whatever, and it is not to be forgotten they are created at the option of the customer and without any possibility of refusal on the part of the company because your franchise makes it necessary to serve all customers within your territory.

If these costs had been carefully analysed and put into the first thousand feet of consumption and you had thereby arrived at a rate of \$1 or \$1.50 for the first thousand feet; 75 cents per thousand for the next two thousand feet and so on down, you were getting closer to approximate justice.

However, as you made progress you accumulated additional facts, and on the installation of this rate you found in any community a large group of customers whose use of gas was so small that the meter had not moved sufficiently to permit you to render any bill. You also had another group of customers who during certain months of the year would use no gas at all, and if the company was to receive a fair return you necessarily had to load the cost which these customers created on the rates which you charged other customers who actually did use gas.

So there was still discrimination, and the next step in rates, which was the customer charge rate, was designed to eliminate even those. Under the customer charge rate you

attempted to identify those costs which were incurred irrespective of any gas consumption by the mere connection of the customer to your distribution system and the necessity on your part of supplying facilities to give him service if he should desire to use it. This you charged to each customer and then charged him for the gas as he used it in addition to this customer charge.

This last rate made it impossible for still another group of customers to have a free ride either at the expense of the company or at the expense of the other customers.

The interpretation of the law in regard to various fundamental rights of the people must and does change as progress is made in the various sciences. For instance, there was a time if a doctor were called nine times out of ten he would bleed the patient. It was the best he knew of at the time and no court would have criticized him but if a doctor today were to bleed patients for any one of a dozen things for which it used to be the standard prescription, he could be successfully prosecuted for malpractice.

At the time the flat rates were in existence, the knowledge of rates had not progressed to a point where a court would have held them to have been unjustly discriminatory. While all of us know beyond a doubt that a straight meter rate is unfair it is only within the last year that a court has held it to be in and of itself discriminatory. (*U. S. Light & Heat Corporation vs. Niagara Falls Gas & Electric Light Company, et al.*, in District Court of the United States, Western District of New York).

There are still discriminations within the customer charge form of rate but in my judgment they do not fall within the meaning of the prohibition against "unjust discrimination." For instance, you and I pay our gas bills and in a sense it is unfair for the company to add sufficient to the cost of gas to make us pay the uncollectable accounts of the company. In the other sense, however, the uncollectable bills are a part of the cost of doing business and as such must be borne by the customers who benefit from the service.

Last year the United States Supreme Court

found it necessary to charge off \$6,000 to uncollectable accounts; therefore, I think that the item can be classed as a necessary item for operation for a gas property.

I think you can best meet the various attempts of the self-styled defenders of the public to discredit any allocation by calling attention, for instance, to uncollectable bills; the varying amount of the distribution system investment necessary to serve a customer near the source of supply and the customer far from the source of supply, and the variation in expense of serving a customer who moves every two or three months and the customer who lives for twenty years at one location even though they use identical amounts of gas.

At the outset of a case I endeavor to convince the commission that it is possible to aim accurate criticism at any rate, no matter how fairly figured, by picking out isolated individual cases, and that it is impossible to design a rate that would do justice in each individual case. An attempt to design and apply such a rate would tremendously raise the cost of doing business without any comparable resulting benefit.

When it comes to presenting to a commission a detailed cost analysis you run into the criticism that your division is theoretical, and the greater the detail in which you present such an allocation, no matter how fairly you may have made it, the more numerous the objections that can be filed. The result is apt to leave an impression in the minds of the commission or the court that the whole thing is entirely theoretical, and since the proposed rate is objectionable to the public generally they deny the application.

This conclusion is, of course, the opposite of the truth but I have yet to see any company which has such an accurate cost record that they can assign, and prove the accuracy of their assignment, of a portion of the distribution superintendence, distribution supplies and expenses, maintaining installations, etc., to customer costs on one hand and to all other costs on the other. For instance, how can you absolutely prove which portion of the work on customers' premises belongs in customer costs and which portion belongs

in all other costs? We all know that the work on customers' premises increases in a given company almost in direct ratio to the number of customers served. We know, for instance, that any big natural gas distribution system could sell an additional amount of gas to one single customer equal to what they now sell to their total number of customers and not double such items as distribution superintendence; distribution supplies and expense; work on customers' premises; removing and resetting meters, and maintenance of service. On that basis probably ninety-five per cent of these items should go into customer costs, but I have not seen any allocation where any such division has ever been made.

I never saw but one case where circumstances would permit proving how much of the total cost of operation is dependent entirely on the number of customers and how few expenses were dependent upon the consumption of gas. In that one particular case, these were the facts: our company was offered a supply of natural gas with the idea we should sell it in a town where there was a gas distribution system with 10,000 customers. In looking over the situation we found what would be the total cost of acquiring the distribution system; at what rate they were using gas, and by that I mean daily and yearly load factors, and the total amount of gas that these customers would use.

About the same time a manufacturing plant in the same town came to us and wanted to contract for a supply of gas. On investigation we found that their total consumption and load factor was almost identical with that of the 10,000 customers. We found that by running 260 feet of pipe from the point where the natural gas would reach the city limits, we could supply this customer and I defy anybody to prove that all of the expense that would have been involved in supplying 10,000 customers over selling that amount of gas under the same conditions to one customer is not customer expense. And do not forget that that includes every cent of taxes, maintenance, depreciation, operating expense, and return in connection with

the entire distribution system over and above what would have been involved in placing one meter, keeping one account and the fixed charges on the 260 feet of pipe.

I doubt whether any customer charge has ever been installed which completely covered all of these items which are due almost entirely to the number of customers attached to your system.

In attempting to defend a detailed cost allocation and contend that your division is absolutely accurate you are forever faced with the necessity of repeatedly admitting that when a single home on a 200-foot lot is torn down and an apartment building housing 100 families put in its place you have not added 100 times the distribution system that the single family house made necessary.

Criticism of that kind is apt to confuse the commission but nevertheless the fact remains that the distribution system with 100,000 customers will have approximately twice the value of a distribution system to serve 50,000 customers. In other words, while there will be discrepancies between individual customers the best we can do is to meet the conditions imposed by the average customer, and the average customer on one distribution system necessitates approximately the same amount of fixed charges as another average customer in some other town.

For this reason I believe that a preliminary statement of some of these criticisms that can be aimed at any rate will go a long way toward removing the force and effect of those criticisms when aimed at you by attorneys representing as they suppose "the interests of the people."

Tony Gallippas, with his wife and six children, lives in a four-room tenement with fifty other families in the same building. Because of the rent Tony can afford to pay he has to furnish his own heat and hot water. Tony carries his lunch; his wife does their washing; they cook their own meals at home, and do not go away on vacations, therefore, Tony is a good gas customer.

S. Johnson Van Astorbilt, with his wife, lives in the Doughmore Apartments paying \$600 a month rent. Heat and hot water are furnished by the apartment house which

uses coal as its fuel. There are no children; breakfast is light; Mr. Van Astorbilt eats lunch downtown at his club, and he and his wife take dinner often at the country club. They go to the seashore for a month or two in the summer and to California for a couple of months in the winter. Even when they are at home their gas consumption is necessarily small.

The distribution system investment for the two must necessarily be the same; the fixed costs are the same.

A straight meter rate in which all of these costs was distributed equally for each thousand feet of gas sold would be a rank injustice to Tony, and would, in my estimation, come under the heading of "unjust discrimination."

These are not isolated cases. Any large city has thousands of both classes and it is a discrimination that so far as possible should be avoided and can be minimized on the installation of the customer charge form of rate.

The fact that Mr. Van Astorbilt's brother lives in a select residential section with a 250 foot frontage and happens to use in his home the identical amount of gas that Tony uses is no criticism of the installation of a customer charge rate. I will grant, of course, that the difference between this latter situation and Tony's still leaves some discrimination against Tony when we charge him the same customer charge, but to allow this criticism to keep out a customer charge rate and make you stay on the old straight meter form of rate is, of course, absolutely unjust.

Rate making is a practical business activity. There are no hard and fast rules that can be used to exactly apportion all of your expenses and my feeling is that those expenses should be divided between customer costs and all other costs in a manner dictated by the experience of individuals who are familiar with the way in which costs are created.

To successfully defend an application for such a form of rate I believe it is necessary to admit that after its installation there will still be some isolated cases of small discrimination, but it is so easy to demonstrate that the move from the straight meter rate

to the customer charge form of rate has greatly reduced the amount of discrimination. You can prove in all cases that the discrimination under the straight meter rate now rests against a great number of customers to whom a dollar means a great deal and is in favor of, because of our living conditions, a great many of our customers to whom a dollar means very little. People of smaller incomes necessarily do more of their own work at home, stay home more weeks in the year and occupy the class of quarters that necessitate a greater use of gas. To spread these fixed charges and operating expenses that are proportionate to the number of customers by means of a rate per thousand cubic feet for gas necessarily reacts against the very people whose use of gas should be encouraged, and which cannot be encouraged at that high price.

If you design the most theoretically correct gas rate in the world and under that rate a large number of your customers refused to buy gas, you would find yourself in the hands of a receiver and unable to give service.

Practically a gas rate must sell gas if the company is to continue in business, theory or no theory.

Knowing as I do that no customer charge ever yet designed has included all the costs that I firmly believe are dependent on the number of customers and not on the consumption of gas, I start at a rate in this manner. I compute the total amount of revenue which it is desired to obtain on the basis of the sales which the company has. I choose the largest customer charge which I think with my knowledge of the conditions it is possible to secure and make the consumption rate high enough to provide the remaining amounts of necessary revenue. All criticism directed at this rate will be directed at it on the basis of the customer charge being too high. Knowing that my distribution system investment is \$100 or \$125 per customer, I figure return, taxes and depreciation on this item. I take out of the operating expenses only those items that are plainly chargeable to the number of customers and on which there can be no question of alloca-

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Initiative: An American Ideal

By PHILIP CABOT



Philip Cabot

IN one of his descriptions of Indian life that inimitable story teller, Rudyard Kipling, announces this motto for statesmen: "A policy is the protection of the fool against the unforeseen." The cleverness of this epigram is so irresistible that it may seem impertinent to inquire what he means by it, but if the advice contained in it might mislead any one, the necessity for such an inquiry becomes imperative. For many years I was misled by it, but I now think that it states a false principle for it is nothing more nor less than a doctrine of opportunism, which would reduce those who adopt it to a position where they are the mere sport of circumstance. It has a very modern ring which chimes perfectly with the popular notion that we live in a universe without guidance and in the midst of forces which are utterly indifferent, if not actually hostile, to the happiness and the welfare of mankind.

With such a doctrine I have no sympathy for it seems to me not only false upon its face but wholly at variance with the history of our race, the most striking characteristic of which during the last few centuries has been the determination which we have shown to bend circumstance to our will. No race of opportunists aiming merely to adapt itself to a hostile environment so that it should not be destroyed could have wrought the changes which we have witnessed during that period, and I suggest to you, therefore, another motto which is better fitted to our national temper: "An iron will and an unflinching purpose are the hammer and the anvil which the bold man employs to shape his future."

Presented at Industrial Gas Section meeting, A. G. A. Convention, Atlantic City, N. J., Oct. 17.
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Opportunism may be the best policy for British statesmen, but the man who is determined to master his environment and control circumstance must have a purpose in life, and this purpose must be based upon a faith which nothing can shake that the universe is controlled by a beneficent will with which he can harmonize his undertakings. So armed he can face the caprice of circumstance (which men call fate) without fear, because whatever may befall he will never allow the initiative to be snatched out of his hands. Such has been the faith and such the method which have made this people great and I venture to predict that no man can raise the standards of his living or prepare a better future for his children by any other. The law for nations is the same as the law for men.

Any one who will meditate upon the great leaders of our industrial past must admit, I think, that initiative has been the secret of their success. They have never allowed circumstance to daunt them. They were always engaged in an offensive war upon their environment with a national ideal as their objective and they were actuated by a simple, clear, and fundamentally unselfish purpose. I recommend such a policy to you and I say unselfish advisedly, not from an impertinent interest in the welfare of your souls but from a practical interest in the prosperity of your business, for a moment's examination of the facts will show, I think, that unselfishness pays in business. You are all aware that no transaction is really profitable which is not profitable to both the buyer and the seller, for if one profits at the expense of the other the loser will not trade again and the winner is therefore really the loser in the long run because he has lost his customer. Merchants do well, therefore, to pay the most scrupulous regard to the interest of their customers for only so can they safeguard their own.

The rule, therefore, which should guide all great industries on the road to a perma-

ment and honorable future is that they must seize and maintain the initiative through thick and thin and that their dominant and conscious purpose must be to make this world a better place for those who shall come after them. These are not counsels of perfection, but simple truths without which ultimate success is impossible in a world designed like the one in which we live.

Now I ask you to consider how far these have been the ideals of the gas industry in the past and how far they are its ideals today. Going back to the early days, we find the true pioneering spirit animating men who had made a great discovery and who were eager to make it available to their fellow-men. Gas became the great illuminant in the congested centers of population, driving before it the tallow dip, the more modern candle, and the kerosene lamp. Its achievements were great in proportion as it lifted a burden from the daily lives of city dwellers. But unfortunately the time soon came when, because of the nature of the business, it was classed as a monopoly and the industry deprived of the spur of direct competition rested upon its laurels, and fell into a sort of lethargy. From this it was roughly awakened by the advent of electricity, not as a direct competitor but as a substitute, which, however, attacked the gas industry with a competition so menacing that many investors despaired of it and threw their securities on the market in a frame of mind closely resembling panic. As a result of this attack rather than upon their own initiative, the gas companies found an outlet for their product in the field of domestic cooking, which proved to be so profitable that it not only saved the industry from threatened destruction but produced an era of even greater prosperity. Thus competition proved to the gas industry a blessing in disguise, as it has so often in other cases. But it can hardly be said, I think, that it learned its lesson for again the industry seemed to fall into a trance from which it has again been necessary to awaken it. The changing habits of city dwellers and the advance of its old enemy electricity into the

heating field has now produced a situation where many of the gas companies find themselves with a majority of their domestic customers paying less than it costs to serve them. If the leaders of the industry had learned their lesson and had changed from the defensive attitude to one of active aggression—in short, if first-class leadership had been available—the industry would have gone out to meet the situation and water heating, house heating, and industrial heat treatment would have been actively developed long ago. But, as it is, even today the companies have only just begun to push water heating vigorously and there is no marked enthusiasm for expansion into the rest of the field except in rare cases. There are notable exceptions of companies which have entered the industrial field but the cases in which this has been done with the vigor of a pioneer breaking into a new world are not numerous.

Now I ask you to try for a moment the difficult and perhaps disagreeable experiment of disassociating yourselves from your past, and looking at this situation objectively as an outsider or a competitor might view it. Does it seem to you that the history of your industry has been that of one which has seized and maintained the initiative in the face of hostile circumstances; or has a lack of initiative been its most marked characteristic? Have you not, in fact, been opportunists driven by your more active and alert antagonists, first from one fortified position and then from another, always on the defensive and occasionally in the pitiful position of seeking the protection of the Government against your adversaries?

I think the attitude of the investors in the securities markets will give you the answer to this question. These men know that leadership is as necessary in industry as in war, and that industries which permit the initiative to pass out of their hands are like the northern armies during our Civil War—until General Grant was finally put in command a continual disappointment to their supporters. The best defense in a competitive field such as that in which your industry now

operates, and has operated for many years, is a vigorous attack. You must keep your adversaries—coal, oil, and electricity—so busy defending their positions that they have no time to hatch schemes to attack you. Such an attitude would improve your relations with the investors from whom you must get your money, with the customers to whom you must sell your goods and with your employees, who are the rank and file of the armies which you lead. Men are glad to follow a leader who has a plan of campaign, no matter how desperate the odds, but they will soon begin to desert from an army which has gone into camp for an indefinite period, no matter how comfortable the quarters or how ample the rations. An industrial organization which tries to stand still will soon begin to disintegrate.

Now it may seem to many of you that I have exaggerated the shortcomings of the gas industry and that such talk comes with an ill grace from your guest, and if I were to stop here you would be right. Destructive criticism is thankless and sterile. But it is because I believe that your opportunity is so great and because I am so eager to see you take advantage of it that I have drawn for you this gloomy picture. I want to show the brilliant opportunities of your future in such strong relief that you and the organizations behind you will go forward with the requisite enthusiasm.

Now what are these opportunities? Speaking of the gas industry as a whole, it is no exaggeration to say that the place which gas should occupy in our industrial structure is now almost wholly occupied by your competitors. Although the electric power industry is much younger than yours, it has outstripped you so rapidly in the last twenty years that the development of gas stands today about where electricity did at the beginning of the century. Most of the gas companies have allowed their competitors to pen them into the domestic field and even of that many of them hold little more than a quarter. The area, therefore, which you have to conquer may prove to be more than ten times as large as that which you now

occupy and you will pardon me, I hope, if I express the opinion that you must occupy it or prove unfaithful to the duty which the nation has laid upon you. Coal still occupies the largest place in the heating field but the day when raw coal should be burned for domestic or industrial purposes in cities, or even in suburban areas, has passed. The smoke and dirt resulting from this practice not only render our cities less attractive to live in but are probably a distinct menace to our health and, considering that a large and growing part of the population must live in cities, this lays upon your industry an obligation which you will not be held blameless if you neglect.

Only a portion of the field which you must ultimately occupy is visible from your present position. But that portion comprises water heating, the heating and cooling of buildings large and small, and all the industrial processes in which coal can be used. A part of this area is now occupied by your more alert competitors in the oil and electric industries and so far as the public is concerned it is relatively unimportant whether you attack and retake these positions or not, because in the area occupied by oil and electricity the customers are now well served and they will therefore stand upon the sidelines and watch the battle between the contestants without much anxiety for the result. But raw coal must certainly be driven from the field and you must do it.

It would be impossible for me within the limits of this paper to outline the whole strategy of your campaign, even if it were within my power, which it is needless to say that it is not, but I will suggest to you briefly two major considerations which are, I think, the foundation upon which any successful plan of campaign must rest. These are, first, more skillful pricing of your service, and, second, more adequate development of the machinery of utilization.

Taking up these problems in order, the prices necessary to get the business in the field which I have outlined must be very low compared with those at which gas has been sold in the past. As the field is now oc-

cupied by your competitors, it is comparatively easy in theory to determine the prices which you will have to offer to get the business, and in practice your problem narrows down to the question of the price differential which you can obtain because of the superior quality of your commodity in this highly competitive market. But when you have exercised your utmost skill upon the customers of your competitors you will still find that the prices are far below your present costs and that the methods of cost allocation to which you have been accustomed will have to be stretched to the breaking point and perhaps beyond it, although I have observed that cost allocations develop remarkable elasticity in the hands of skillful manipulators. But I am inclined to believe that you will do well to disregard your past costs altogether and, having ascertained the prices at which great quantities of gas can be sold, proceed to devise new methods of production and distribution which will give you costs low enough to show a profit. That this can be done I have no doubt because it has been done by some companies already but it will not be easy and after you have availed yourselves of all the help that science can give, great boldness will be required. In some parts of the country the use of natural gas will solve your problem and the areas in which it can be made available have been greatly enlarged in recent years by the use of high-pressure distribution.

Here you may well profit by one of the mistakes of the electric companies. Fifteen years ago these companies were small, isolated units, each serving its own franchise area and when the development of high-tension transmission encouraged the development of large hydro-electric and coal-burning stations, these local companies often stood in the way of progress, demanding to be protected in their local monopolies at the expense of their customers. It is needless to say that in this effort they failed and in the process they damaged their own reputations almost beyond repair by refusing to take advantage of their position to serve their

customers. Such a use of their monopoly power served neither their own interest nor that of their customers. Monopoly was not granted for this purpose. Its purpose was to encourage large units of production in order to reduce costs and prices. These local companies controlled the local markets, and the man who controls the market end of a business is unfit for his position if he does not see the advantage which he holds. It is common knowledge in competitive trade that the man who controls a market holds the key to the position and that the producer of the goods is just a tool in his hands. I believe it to be the rule in all great industries that the retailer is the real master in the field, and the manufacturer merely his servant. The true interest of the local electric companies, therefore, lay not in obstructing the development of large producing units but in encouraging them by offering to shut down their local plants and to buy large quantities from the new producers at the lowest prices which they could afford in order that by passing on these low prices to the customers the market might be developed to a maximum.

Now it seems to me that the companies controlling the local gas franchises have the same opportunity before them. Their interest in the production of the commodity is small compared with their interest in its sale and their attention should be mainly concentrated upon the development of the market which is where their true profit lies. If, therefore, a company controlling natural gas resources or able to produce manufactured gas upon such a scale that very low costs can be obtained is willing to take the production problem off your hands, a contract of purchase skillfully drawn may often be most advantageous, because you can concentrate your energy and your capital upon development of the market. When the development has gone so far that a period of stability and slow growth has been reached, it will be time enough to consider whether the profit to be obtained from the production of the commodity is more than sufficient to attract the requisite capital. By keeping clearly in sight

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The Industry's Program

By ALEXANDER FORWARD



THE program of the industry, based upon its Constitution, is written in the Five-Year Program of Association Activities, formulated in 1926 by the committee of foremost executives, headed by Hon. George B. Cortelyou, adopted in unanimous acclaim by the Association and carefully followed by the Executive Board and by headquarters staff. Any discussion, therefore, of our activities relates to the Five-Year Plan. It was and is a source of great gratification that our Executive Conference in Atlantic City on May 31-June 1 last, after hearing a review by Mr. Cortelyou of a working out of the plan at the age of three years, unanimously adopted the following resolution:

"The conference of the executive board and advisory council of the American Gas Association has heard with pleasure and pride the review of progress of the Three-Five Year Program of Association Activities, as presented by Hon. George B. Cortelyou, chairman of the special committee which prepared the plan. It becomes more and more evident that the report of the committee was wise, farseeing, progressive, and well-balanced, and that the Association directorate has adhered thereto constructively and successfully. To this plan and its execution we can justly attribute in large measure the satisfactory progress of Association affairs."

The plan is our code but, as stated therein, it is flexible, to meet the needs of any situation or any changed conditions that may arise.

The Spirit of Research

All of those who are familiar with Association work during the past two or three years are aware of the manner and extent

to which the spirit of research for the industry has taken hold of the minds of our people in all branches of the business. There is no question that we fully understand now that any industry under modern conditions must not only ascertain the exact facts of its present situation and the possibilities of its future in order to advance, but must ascertain and act upon them if it is even to live. The Executive Board gives earnest attention to all plans proposed for research in any line. Its difficulty now is not to stimulate the demand but to judge between the requests that come to it from all sources within our ranks and to choose which activities should next be undertaken within our limited financial resources. The services of our Committee on Coordination of Scientific and Marketing Research, headed by Past President Abell, have been invaluable in this connection and that committee, comprising representation from the active forces in our organization, carefully selects the projects it deems most important and makes its recommendation thereon to the Executive Board.

The story of our research projects will be related at this convention. The accomplishments of our Industrial Gas Research Fund, administered by an able committee, have during the past year been of striking interest and great value to the industry. While one cannot drop a dollar in the research slot and secure a definite number of dollars in return, it is most gratifying that the investment in industrial research has brought direct returns in dollars and cents to the industry in the development of efficient gas burning industrial appliances, especially in the fields of baking, brass melting, hotel broilers, etc.

Presented at General Sessions of A. G. A. Convention, Atlantic City, N. J., Oct. 15.



This is the centerpiece of the A. G. A. service exhibit at Atlantic City

We would misjudge the purpose of this research, however, should we confine our investigations to the actual development of appliances. Much of it is directed to the ascertainment of fundamental facts concerning the behavior of various metals under a wide variety of conditions and these facts, while not demonstrable in the shape of machinery, are of the greatest value to the industry through the information thus made obtainable to the engineers and metallurgists in those industries to which we desire to appeal.

Our research in pipe joints and in pipe coating, in house cooling, in mixing gases, in the measurement of large volumes of gas, in the production capacity of wells, originated by the technical men in the manufactured and natural gas fields, are all progressing satisfactorily in competent hands with the promise of most valuable results.

Headquarters keeps in closest touch with all of these projects and with others in operation or in contemplation by manufacturers, and in educational institutions, for purposes of correlation, avoidance of unnecessary duplication, and for the information of the industry.

Spirit of Expansion

The Commercial and Industrial Gas Sections of the Association have, during the year, done work of the utmost importance. Three thousand men and women have taken the course in domestic gas salesmanship and without exception the expressions of opinion have been enthusiastic concerning its value to the gas industry. In fact, nothing could more effectively demonstrate this fact than the steps already taken and the preliminary work already accomplished by authorization of the Executive Board for a course in industrial gas salesmanship and for the collection and distribution of data sheets for use by sales managers.

Headquarters continues its policy of assisting in fostering of more friendly and co-operative relations between our industry and those which are of such importance in the daily activities of gas companies. I refer particularly to retail and chain merchants, heating and piping contractors, master plumbers, and any and all dealers in our appliances. Our field representative has done notable work in local meetings planned for this purpose.

Studies made in our Commercial Section of compensation of salesmen is another important phase of our activities. We continue our cooperative efforts with architects and builders. Our annual regional sales conferences are well attended and indicate a large increase of interest. In all cases we continue to stress the importance of laboratory approved appliances. Home service, now accepted by the industry as an integral part of our work in the domestic field, has its counsellor at headquarters.

The year has witnessed notable advance in the development of gas refrigeration. This is an important and valuable load for our industry and in many cases changes an unprofitable to a profitable customer.

Since most industrial installations are jobs for the sales engineer, the Industrial Gas Section has wisely extended its work in the compilation and publication of all available data and information on industrial applications of gas. We continue to publish, revise

and republish, and extend the scope of, our industrial gas booklets. We work in close cooperation with organizations such as the American Society for Steel Treating, the American Ceramics Society, Heating and Ventilating Engineers, and others, and take part in their exhibitions. Our show at the Steel Treating Exposition recently, in Cleveland, received enthusiastic commendation not only from our own people but from responsible representatives of industries in that field. Headquarters is paying the closest and most unremitting attention to the problem of the industrial sales engineer, in full realization of its difficulties and determination to do everything in its power for the rapid extension of the use of gas in industry.

At Headquarters the conviction is unanimous and profound that our companies generally, from their responsible executives down, are in full realization of the vital importance of development of our salesmanship and are in full sympathy with our efforts in this direction.

The Executive Board during the Association year just ended increased the appropriation for advertising gas for industrial purposes in trade publications. The success of this activity and the growing respect and consideration which we receive from trade associations and from trade journals, as evidenced by their willingness and even eagerness to publish articles on industrial uses for gas, convince us that the claims of gas as an industrial fuel go unrecognized nowhere, and, coupled with the successful operation of the Regional Plan of Cooperative Advertising, sponsored by the New England Gas Association, and followed elsewhere, lead to the opinion that the industry is approaching serious consideration of advertising in a wider and national field.

Statistics of the Industry

It would be difficult to overestimate the importance of the work now being done by the Statistical Bureau at Association Headquarters. The volume of the material, the number and extent of studies that are made and the constantly increasing demand from



Record-breaking gas refrigerator sales indicate a great future for the industry

many sources for reliable information concerning trends in the industry, grow rapidly. In increased volume we have daily requests for information from security houses and other financial sources, from the financial press, and other agencies whose confidence in the industry's statistics has important bearing upon the marketing and stability of our securities and the position of dignity it occupies among the industries of the country. In addition, we are drawn upon in a constantly increasing degree by our own companies for information and for studies of available material for use by our members in their own work. This accurate knowledge of what we are doing is now attaining approximate appreciation by the industry.

In 1928 the revenues of the gas industry aggregated \$882,000,000, an increase of nearly 8 per cent over the preceding year. At the close of 1928 its customers numbered 16,000,000, a gain of more than 500,000. To the service of these customers was dedicated an investment estimated at \$4,750,000,000.

Within recent years the more intimate association of manufactured and natural gas interests has made it increasingly difficult to compile and present statistical and economic data which sharply differentiate between these two phases of the industry, so united and intermingled have their operations become in certain sections. So that if the large body of detailed and extremely valu-

able information which this Association has built up over a number of years regarding manufactured gas operation is to be utilized to its full value, it must be supplemented by the collection and compilation of correspondingly adequate statistical data on natural gas operations. For in no other way can we obtain a clear and comprehensive picture of the united gas industry as one of the nation's great and fundamentally basic public utilities.

Available data on natural gas indicate an 8 per cent increase in production during 1928. While it is difficult to estimate what proportion was distributed by public utilities, owing to the large volumes of natural gas used for field operations and manufacture of carbon black, it appears that in the strictly domestic field the year witnessed a 10 per cent increase in number of customers, an 8 per cent increase in sales and a 2 per cent increase in revenues.

A comprehensive picture of manufactured gas operations during 1928 will be found in our Statistical Bulletin, distributed at this Convention. Among the more noteworthy features of progress indicated is an 8 per cent increase in industrial-commercial sales, and a 40 per cent increase in house-heating sales during the year.

Domestic sales other than house-heating, however, showed less than a 3 per cent increase, and some sections of the country reported declining sales per domestic customer. This is obviously a situation demanding close study and intensive research if the industry is to successfully adapt itself to the profound socio-economic changes which have characterized American family life during the past few years. In attempting a study of this problem, however, the Association is too frequently impeded by lack of information on the part of its member companies concerning the trend of their domestic sales. It must be emphasized again, and strongly, that the primary basis of any sound merchandising policy devoted to the upbuilding of the domestic business is a properly detailed knowledge, on the part of each company, of the growth and trends of its various classes of sales or market outlets.

Another factor emphasized in our Statistical Bulletin is the continued declining importance of water gas to the industry at large. In 1922 water gas represented 74 per cent of the gas produced by the industry itself, whereas by 1928 this proportion had dropped to only 66 per cent. In 1920 out of the total gas send-out of the industry, including coke oven and natural gas purchased, water gas represented 60 per cent, while in 1928 this figure had fallen to only 45 per cent.

Another significant feature is an increase of 42 per cent in the amount of coke oven gas produced by utilities themselves. At the end of 1928 there were 20 of these by-product coke oven plants owned and operated by gas utilities. Coke oven gas purchased from merchant coke and steel companies increased 6 per cent during 1928. At the close of the year there were 37 such plants supplying coke oven gas for distribution by gas utilities. Of these 37 plants, 20 were connected with the iron and steel industry, while 17 were operated by merchant coke companies.

These changes in gas production are reflected in the fuel requirements of the industry. In 1928 the bituminous coal used by the industry was only 15 per cent more than in 1919, the total oil consumed has been nearly constant during these 10 years, while the anthracite consumed by the industry in 1928 was only one-fifth of the amount used in 1919. At the same time the coke consumed by the industry for all purposes in 1928 was nearly three times such use in 1919, or an increase of 180 per cent. In view of the pronounced and increasing trend on the part of the industry as a whole toward the substitution of coke oven gas for water gas, the economic utilization of the additional coke resulting from these changing production policies must continue to merit increasing study and attention from the industry at large.

The manufactured gas industry delivers 92.5 per cent of the gas it makes to the customer, our unaccounted for having been reduced to $7\frac{1}{2}$ per cent.

At the close of 1928 the manufactured gas industry in the Dominion of Canada served 500,000 customers, an increase of nearly 9 per cent during the year, while the investment dedicated to these patrons aggregated more than \$62,000,000. Over 16,000,000,000 cu.ft. of gas were manufactured during 1928, representing an increase of almost 8 per cent over the preceding year.

In response to the growing demand for more timely and current information on our industry, the Association has been releasing since March, 1929, a monthly summary of gas company statistics. This service has proven of great value not only to our member companies, but has received widespread publicity in the press of the nation, contributing materially to a better realization on the part of the investment and general public of the great opportunities for public service which still lie ahead for the gas industry.

These data just released for the first eight months of 1929 serve to emphasize some of the more important trends discussed above. While total gas sales for the period increased 9.3 per cent, the most important factor contributing to this increase was a marked expansion in house-heating and industrial-commercial sales, some sections of the country reporting increases in industrial-commercial business as large as 20 per cent for the 8-month period.

The trend from water gas to coke oven gas continues during the present year, water gas production showing a decline of nearly 8 per cent, while coke oven gas distributed by gas utilities during the first eight months of the year exceeds by almost 30 per cent the figure for the corresponding period of the preceding year.

In 1928 the operating revenues of the industry increased 3 per cent, while operating expenses decreased more than one per cent, affording striking testimony to the soundness and efficiency of the study and research which have been devoted to the problem of lowering production costs.

Taxes paid by manufactured gas companies in 1928 aggregate \$51,000,000, representing an increase of 35 per cent since 1923,

as compared with an increase in other operating expenses of only 12 per cent since that date. In 1923 taxes absorbed 8.7 per cent of operating revenues, but in 1928 almost 10 per cent of the operating revenues of the industry were required for tax payments.

In 1928 operating expenses per thousand cu.ft. sold were nearly 4 cents less per unit than for the preceding year. It is of great interest to note the manner in which these economies effected by the increasing efficiency of management were about evenly distributed between consumers and stockholders. In 1928 the industry collected on the average nearly 2 cents less for every thousand cu.ft. of gas sold to consumers than in 1927. At the same time there was available for stockholders' dividends and surplus about 2 cents additional for every 1000 cu.ft. of gas sold during the year.

Such data bear witness not alone to the ability and determination of management to utilize to the full the results of the industry's far-flung program of research and study devoted to the problems of lowered production costs and of new uses for our product, but more important still, they emphasize the extent to which management appreciates and accepts its responsibility for public service by sharing with consumers the savings achieved by increased managerial efficiency.

A. G. A. Laboratory

The Laboratory is daily advancing in usefulness and in significance to the industry. Its report will be before you. The Laboratory Seal of Approval is firmly established not only in the industry but in the minds of dealers. As a combination of laboratory and commercial section work, thousands of Blue Star Homes containing the minimum required number of domestic gas-burning appliances bearing the seal, have been built throughout the country during the year and scores of them have been open for several weeks' public inspection.

Committee Work

May I call attention to the great importance of committee reports available at this

convention and at other periods of the year? These reports are produced by the thoughtful interest of committeemen who are giving their best for the industry as a whole, and their work, available quickly and containing the latest word on the subjects treated, is printed years in advance of possible appearance of text books covering the same subjects.

Without the activities of our general committees and our department and sectional committees, the Association would mean little to its members. The high percentage of attendance, the interest manifested, and the constructive suggestions which they bring to the meetings, are absolutely invaluable. Many of these reports contain original suggestions and recommendations.

Association Work

The Executive Board held eight meetings during the year with its usual high percentage of attendance. Two executive conferences were held, one in Los Angeles, Calif., February 6 and 7, and the other in Atlantic City, N. J., May 31-June 1. The most vital subjects affecting the industry's present and future are freely discussed at these conferences.

The rate service at Headquarters, including publication of the Rate List, is of in-

creasing importance. Reports of our Rate Structure Committee have attained the rank of authoritative treatises on the economic development of our rates and in token of this they are in great demand not only in America but abroad. Our Information Service Letters are in large demand.

The Natural Gas Department reflects the tremendous increase in natural gas service in the western and southwestern parts of the country by increasing activity and importance in Association affairs. In operation, it is found that the problems of the natural and manufactured gas industries are so closely allied and interwoven that the activities of the department itself are concerned mainly with production, with research directly affecting that industry and with strictly departmental organization. The Natural Gas Department held a large and successful convention in Kansas City the week of May 6.

All of our sections have done a splendid year's work. Their programs for this convention and their contributions of committee reports attest a high degree of efficiency in operation.

The Accounting Section held, for the first time, a mid-year meeting; the Production and Distribution Conferences of the Technical Section were continued with extremely

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This is the airplane which was used by the Baker Supply Co., Cambridge, Mass., in transporting their exhibit to Atlantic City. Pilot H. G. Crowley and Boston representative J. A. McCarthy are shown

Domestic Uses of Gas Other Than Cooking

By JOHN K. SWANSON

DOMESTIC uses of gas, other than cooking, are of major importance to the industry today. I predict that a proper development of new domestic uses of gas will be the most important single factor in increasing sendout as well as income. In the field of the newer domestic appliances, the gas industry must wage an aggressive fight. The victor in this battle of salesmanship, merchandising, and service will win a rich reward. Figures for 1928 show that 69 per cent of all gas sales were to domestic customers, and in the United States today we have some 16,000,000 gas customers. We have done little more than the proverbial "scratch on the surface," from a domestic standpoint, as well as industrial and commercial. It is my belief that the gas industry as a whole has been slow to make the most of its opportunities.

It is true that the industry has made substantial progress and material improvement in recent years. It is true that today's conditions are generally satisfactory. There is an optimistic undertone pointing to greater accomplishments in the future. The past five years show substantial and fairly consistent increases in the volume of gas manufactured. Today, the manufactured gas companies serve about three-fourths of the homes using gas.

Using 1924 gas volume as 100 per cent, we find that gas sales show an average increase of 4.8 per cent per year. The first seven months of 1929, as reported to the American Gas Association by 97 companies, show an 8.7 per cent increase in volume of gas sold, and 4.0 per cent gain in gross revenue from gas sales, as compared with the corresponding period of 1928. In other words, there is a high rate of activity in the industrial as well as the domestic field. It would appear that business is even better than optimistic forecasters predicted it would

be, when they made their estimates, early in 1929. Statistics often are dangerous, however. They sometimes create a feeling of smug complacency. They make us want to rest on our laurels. We become apathetic about developing a program with a real merchandising punch. "Business looks good." There is every indication of a favorable trend. Let's let well enough alone, and ride with the tide.

I just expressed the belief that the gas industry as a whole has been slow to make the most of its opportunities. Gains made by the gas industry are not due to a new vision, nor an aggressive, progressive policy. They have been due, primarily, to a complete revolution of the industry—a made-to-order development, if you please, which was bound to bring gains, because the public is demanding the increased comfort, at lower cost, which comes with a modernized domestic gas service. We all know what happened to gas as an illuminant. But remember that in little more than a decade the gas industry has witnessed a change from a 90 per cent lighting load to a 92 per cent heating load. Today gas has been perfected for many domestic uses—uses which were ignored only a few years ago. Today gas has more than 20,000 known industrial uses, and we're learning about new ones every day. Is it surprising that the industry is growing? Considering the circumstances, what else could have happened?

The manufactured and natural gas industry represents an investment, roughly, of \$4,700,000,000. The electric light and power industry investment is approximately \$10,300,000,000. Recent figures indicate that the electric industry will need to spend an amount equal to 35 per cent of \$10,300,000,000 to take care of the potential new business available in the next five years. They estimate that this outlay of money will increase their present gross income 37 per cent. There is but one answer to this challenge. The gas industry, with the same

Mr. Swanson is vice-president of the Minneapolis Gas Light Co., Minneapolis, Minn.
Presented at Commercial Section meeting, A. G. A. Convention, Atlantic City, N. J., Oct. 16.

elements of encouragement, and a field of activity no less limited, must do as well or better proportionately.

Proper exploitation of the many domestic uses of gas must be a part—and an important part—in an aggressive, forward looking, policy for the gas industry. Domestic gas sales have increased 55 per cent in the last ten years. The most rapidly developing part of the residential gas business is the use of gas for water heating, refrigeration, and space heating. Various other appliances are helping to increase the send out. There is no secret reason for the success of the newer gas appliances. There is just one reason why the public is buying and using these appliances. That is because the appliances provide new comforts and perform new tasks more economically and more efficiently.

How, then, shall we sell these appliances? While my observations may be based, to a large extent, upon actual experiences in the city of Minneapolis, these observations are not peculiar to Minneapolis but may be accepted as being generally applicable to the entire industry. I will endeavor to describe briefly the major problems which we studied in order to determine a sales policy.

First: Our market? There is a community of about 500,000 people, and we have 123,000 accounts on our books. We do business with 123,000 homes or firms, so we have a wonderful opportunity to obtain definite figures covering income, standard of living and purchasing power, and it becomes a simple matter to draw an accurate picture of the market.

Second: Our products? What appliances offer the most possibilities? The manufacturers of gas appliances have determined for us to a material extent the type of product, and we are concerned only with selecting wisely those types which will influence demand in our respective communities. The possibilities of selection are vast and numerous, but we must decide the color and size and style, and we must decide whether to emphasize beauty of construction, durability, or both. There is a distinct tendency to make appliances attractive in appearance,

and even though some addition is made to the price, the public appears willing to pay the added amount.

Third: The creation of a demand. The purpose of an analysis of demand is not merely to understand the facts of demand as they exist at any one time, but also to understand the means by which changes in demand take place. It is necessary to know what present demand is in order that the sellers and the customers may adapt themselves to it and comply with its conditions. By devices of one sort or another, demand can be created deliberately in one direction and destroyed in another. Demand is not a fixed state of mind, but for each commodity demand has a history and a future and is always a changing, active force. The complete analysis of demand is a comprehensive task, and the chief factors in it cannot here be treated at any length. However, the salient feature of such an analysis may be given in a condensed form. Necessities—such as food and clothing and shelter—have a universal demand among all classes of people. Other commodities, particularly luxuries and comforts, cater to particular groups and classes of consumers. It is with the latter groups or classes that we are primarily concerned. All of these factors, together with many others, require careful analysis if we are to sell merchandise intelligently and profitably.

Fourth: The service behind the product. The service which should accompany a sale is frequently of greater importance to a customer than the merchandise itself. When a person buys a gas appliance, it is of the utmost importance that the buyer shall receive not merely the appliance, but that he shall be shown how to operate it, that services shall always be readily available for repairs, and that if at any time the buyer experiences difficulty in using the article, the services of the seller shall be available to correct the trouble. The courtesy of the gas company in rendering such services and its ability to make the customer feel that he has been excellently and helpfully treated throughout the transaction, bring a definite result which can be measured in terms of

customers' good will and an increased demand for our product. Yesterday, a water heater complaint was a fearful liability; today, it is a most significant asset. Yesterday, we went about the daily routine seemingly unperturbed over the charge hung on our front door that our policy was "the public be damned." Today, we find ourselves a genuine friend of the common people. These changes have been made effective by a new valuation of the human element entering into our new features of service. In other words, sale of gas appliances plus a generous service program have rectified past blunders and won a distinctive place for us in our field of endeavor. The human equation is the secret.

Fifth: Advertising. The advertising program must be flexible and adaptable to changing demands and new conditions. Advertising alone will not produce sales. One appeal will not impress all classes of prospects. One prospect buys because the price is low; the next one, because the new appliance is more beautiful; the next one, because the appliance is an added comfort; the next, because his neighbor has the new appliance and likes it. Newspaper copy, direct mail, outdoor posters, window displays, radio, must approach the market from many angles, and each message should have as a background the thought that the logical place to purchase a gas appliance is at the gas company's show rooms. Here the customer gets not only an appliance but a guarantee of satisfactory service.

Sixth: Sales management. Advertising must create a desire, but we must remember that what a buyer wants is largely a matter of psychology. Suggestion is a potent force which will bring an instinctive reaction. Leave to the salesman the job of supplying evidence, proof, logic, and a chain of reasoning. The major function of any sales department is to make people want to buy goods. To this end, the sales manager and all those under him must take the initiative in a campaign to create an adequate demand. The measure of success for sales management is the volume of sales. Sales come about, not by waiting for customers to hunt out our

display rooms in search of goods, but by going out into the highways and byways and hunting out customers and persuading them to buy. A sales manager is not performing his duty if he is merely pursuing a policy of "watchful waiting" for customers to come to him to buy. It is his duty to put the suggestion into the minds of possible buyers, to bring to bear on them the full force of the personality of trained salesmen—in short, to create sales. In our business we must recognize that good salesmanship is an indispensable factor. Care must be exercised on the selection of salesmen, and a premium must be placed on the qualities of persistence, force of personality, initiative, alertness, sociability, and aggressiveness. There also must be a cadence in his step evidencing dignity and confidence. Natural aptitude for selling is not all that a salesman needs, however. He must receive also a training in the technique of selling and must be thoroughly familiar and conversant with the particular commodities he is selling. In addition to training, he must be inspired by incentives to maximum selling effort, by the use of prizes, quotas, and contests. Instincts of rivalry must be aroused; financial incentives vigorously encouraged; the desire for power and successful achievement sustained by the ever-present expectancy that when a salesman makes good consistently, he will receive promotion and salary increase, even if his income exceeds that assigned to fixed salary positions. Such efforts expended in the training of sales force will be more than justified by the results produced. Our sales department has justified itself. It has succeeded in arousing demand where none existed before. It can, and moreover it does, sell the goods.

Investigations conducted in connection with the determination and development of our merchandising policy disclosed much interesting and informative material. For example, it was found that 90 per cent of the homes having hot water service were using the furnace coils or tank heaters. Previous advertising and sales methods had not materially altered this condition. Through the use of modern methods in merchandising we

have succeeded in eliminating 87 per cent of the furnace coils and have replaced them with automatic storage water heaters. This is cited as a single item indicating the possibilities in our field of endeavor, and I will add that when our industry awakens to a full realization of the amount of business obtainable through intensified and skillful sales methods, past performances will be recalled only as a bit of unhealthy history resulting from a lack of vision.

Load factor and full utilization of production and distribution facilities are always a problem in the manufactured gas industry. In relation thereto, the effect of the merchandising policy assumes formidable proportions. The following tabulation will serve as a guide to the proper place and importance of sales emphasis:

	Average Annual Consumption per Unit
Continuous Water Heaters, 30-gal. type	36,000 cu.ft.
Continuous Water Heaters, 50-gal. type	60,000 cu.ft.
Automatic Water Heaters	42,000 cu.ft.
Storage Water Heaters	42,000 cu.ft.
Gas Refrigerators	18,600 cu.ft.
Space Heaters	6,000 cu.ft.
Ironers	1,200 cu.ft.

As tangible evidence that we have not been merely theorizing in Minneapolis, I will submit some figures covering our actual performance during the first half of the current year.

Appliances Sold	Average Annual Consumption
Continuous Water Heaters 1700	65,000,000 cu.ft.
Gas Refrigerators 250	4,650,000 cu.ft.
Incinerators 118	1,416,000 cu.ft.
	71,066,000 cu.ft.

The principal items comprising our sales quota for 1929, of gas-consuming units other than ranges, includes 3500 continuous water heaters, 600 refrigerators, and 350 incinerators. By projecting our interests into fields rightfully ours, we will increase our sendout, based on the sales during the first six months of 1929, roughly twelve million cubic feet per month or seventy-two million feet per

annum. This increase does not reflect the additional load secured by the installation of 4000 gas ranges during the same period. Not all of these 4000 gas ranges represent new business, of course, but 30 per cent does represent new business. And moreover, the same initial importance has been placed upon the load building qualities of refrigerators, incinerators, space heaters, and other appliances as had previously been given to water heaters.

To imply that this activity in the sale of appliances in Minneapolis is due to natural causes governing the trend of the gas business would not be proper, or correct, or reasonable. It is rather the result of adopting and employing scientific marketing methods. It is the result of giving merchandising policies a square deal.

And upon whom does the responsibility for development rest? Not on the sales manager! It rests squarely upon the individual operating company executive. The fulfillment of an aggressive solution of intensified sales is a challenge—a challenge not first to the sales manager but first to the operating executive. It is from this source that the sales manager must receive his inspiration as well as his instructions. The operating executive must supply this new sales enthusiasm. His presence should frequently grace the daily sales pep meeting. In other words, he—the operating executive—should not be a deterrent to his sales organization. His aptitude in the field of salesmanship should be respected. His sales zest should become contagious. There must be a perfect understanding between the executive, and the sales manager, and his subordinates. A spirit of complete cooperation must exist and unnecessary red tape must be eliminated. By way of contrast, it may be of importance that the gas executive be seated at the side of the state official at occasional civic affairs, be called by his given name by the Mayor of his fair city, or be an outstanding personality about town because of his golf scores, but these attainments, valuable as they are, do not especially inspire his sales manager or sales force. In

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The Accountant and Management

By DEAN JOHN T. MADDEN

WE have undoubtedly reached a point in our industrial development where a pause is necessary in order that we may intelligently appraise present conditions and tendencies. The series of changes of the post-war period have taken place so rapidly and the pressure upon those most actively engaged in the economic struggle has been so unrelenting that scarcely any serious thought has been given to the problem of ameliorating some unhappy conditions which accompanied our industrial growth. These maladjustments have not entirely escaped the scrutiny or observation of some of our industrial and financial leaders. And while we are yet some distance from reaching a solution to these vexatious questions, I have no hesitancy in asserting that a socially beneficial result will be due in no small measure to the intelligent and enlightened cooperation of the university and industry. Let us have more of it.

Within industry itself, however, many of these maladjustments are problems which paramously fall within the area of cooperative effort on the part of accountant and management. The Federal income tax returns show that about forty per cent of the corporations in this country present each year tax returns that are of no interest to the tax-gatherer. It is evident that there exists a tremendous amount of economic waste because losses on operation fall either upon the creditors or the owners, with the probability also that labor suffers from lower wages. On the other hand, a certain group of consumers obtained goods from these corporations at less than the cost to produce plus a fair return on the investment. There resulted, therefore, an invisible shifting of wealth from one group in society to another. Obviously there was some bad management and probably inadequate accounting as well.

Accounting is the science which concerns itself with the compilation, recording, and presentation of financial facts, principally for the purpose of presenting the results in the form of two statements, viz., the balance sheet and the income account. Closely allied to this science is the science of statistics, which some might say embraces also the science of accounting. The accountant furnishes much of the raw material with which the statistician works. The latter, by applying scientific processes, presents the data in a form and under a method which reveal quantitative data in their true relationships. There are distinct limitations to strictly accounting processes and these are overcome by the statistician who by graphs, charts, or tables, or a combination of them, develops long-time trends or presents the salient facts concisely and clearly with seasonal and other elements precisely adjusted. Hence, in thinking of the relation of accounting to management, we must necessarily include statistics.

Accounting furnishes to management the necessary facts upon which to base executive decisions; it also establishes the means by which results may be controlled. Instead of proceeding haphazardly, management is in a position to know at all times what has taken place, what the present conditions are and what is likely to take place in the future. There is a tendency to regard the operations of the counting room as a part of the overhead which must be endured. There are some managers of responsible businesses who fail to secure from this element of expenditure even a small part of the benefit which may be derived. They seem to be content with the minimum of helpful information which comes from the usual balance sheet and income statement and, if the suggestion is put forward that additional necessary expense be incurred to broaden the scope of the usefulness of this department, it receives scant courtesy. Proper

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and judicious accounting expense is the cheapest form of insurance which management can secure if a healthy income account is to be maintained.

Many executives do not realize that under modern conditions the experience of the past is becoming of less service to the executive in determining policies for the future. Moreover, business is dynamic and each period presents its own peculiar problems which have no counterpart in past experience. Alvan T. Simonds has recently called attention to the fact that since 1920 the major cycles of industrial production show that each cycle is approximately of three years' duration, that each successive peak is higher than the preceding peak, and that each successive peak comes later in the year than in the preceding cycle. I mention this as merely one of the factors which the modern accountant must take into consideration when engaged in interpreting results. It is clear that past results, when presented statistically, indicate trends but the results of any one year taken alone are of limited value as safe guides for the future. In a study which I made several years ago for the National Electric Light Association, the fluctuations in industry were clearly indicated from the income tax returns of business enterprises. Hence, the accounting function is an integral part of the economic process which should be fully utilized by intelligent management. But, if the accountant is an aid to management in determining future policies, he is also the registrar of management's success and failure.

A certain percentage of the consolidations that have taken place was motivated by the necessitous desire to avoid losses in operation. Prohibited from price-fixing by the Sherman Act, under which the tendency would be to raise prices so that poorly managed businesses would make a profit—and the well-managed enterprises would make extraordinary profits—weak enterprises have been and are being forced out of business or merged with better-managed ventures. In theory at least, this process results in bringing an increasing amount of production and

distribution under the control of skilled management. The consolidated group will enjoy the benefit of better equipped research workers and laboratories, higher grade engineering and accounting services.

On the other hand, large scale organization carries within itself the germs of its own destruction. There is a point at which the law of diminishing returns will begin to operate. Experience has shown that much of the anticipated savings from mergers never materializes. If prices do not fall, or if they are increased, the basis is laid for the demand for government interference of one sort or another.

Successful operation of modern large units requires arbitrary power in the hands of the directing genius, who must make policies and decide all major questions. This concentrates power in a form that lends itself to attack from the outside and opens the door to all kinds of quack legislative panaceas. The responsibility in the hands of the manager is as great as that of the commander-in-chief of the army in time of war. The manager must fortify himself with facts; he must seek advice and counsel; he must consider the psychology of a business situation. The accountant who is to advise intelligently must be trained to meet his responsibilities of the new era. Wise managers and intelligent accountants are absolute prerequisites in the public utility business.

Obviously the primary purpose of business is to make profits; and it has been well said that profits are the life blood of business. Society has the natural right to regulate industry if industry shall require it; and ultimately society will regulate industry, if industry will not meet its social responsibilities.

In the era of smaller competing units we justified the suppression of certain facts in financial reports on the ground that each enterprise had the right to take certain precautions against its competitors. But as competition is gradually eliminated this precaution no longer has its former justification. Hence, we rightfully expect more frank disclosures in the financial statements

of giant corporations. Thus, in Great Britain, under a new act which will come into operation shortly, certain information must be given in regard to directors' remuneration, and the directors in their report will be required to state the amount of profits carried or proposed to be carried to any reserve appearing in the balance sheet. This act, by the way, also defines a subsidiary company as one in which more than 50 per cent of the issued share capital (whether held directly or through a nominee) is held as an asset of the parent company; or one in which 50 per cent of the voting power is in the hands of the holding company; or one in which the holding company has power directly or indirectly to appoint the majority of directors. I mention these changes as evidences of tendencies which may result in still further operative interference through legal enactment unless industry of its own volition by frankness in financial reports shall obviate this necessity. A study of the act referred to will be of paramount interest to all accountants and managers.

The complicated network of modern industrial organization must be kept in a healthy condition. This is the problem of management, whose functions have become fiduciary in the most exacting sense. For management not only must account to its shareholders but also to society which extends certain privileges and confers certain rights safeguarded by law. It is evident then that honest and independent accounting is a necessary correlative to the fiduciary relation. Hence, it seems to me that the accounting function must become even more important in these days of large scale organization. It is true that these giant companies could not have existed unless the accountant had perfected the mechanism by which the results of operation could be ascertained and the activities controlled. But if we reflect upon the increased social responsibilities of the large industrial unit, then it seems to me that an entirely new and enlarged vista of the accountant's responsibilities and duties is presented. From the

social standpoint he is a factor as important as the production manager or sales executive.

The prudent man will not attempt to dogmatize in matters of account reporting where there is such a wide area for honest divergence of opinion. The question has its legal aspects as well as its social aspects and the element of expediency is ever present because the extent to which disclosure is harmful to the best interests of a business enterprise cannot be determined *a priori*. But, if I may venture a recommendation, it would be that accounting should be placed more on a parity with management. I fear that unless this is done we may experience more rigid governmental regulation of accounting in general. The accountant knows that even the most carefully prepared statements have their limitations. Recognizing these limitations more acutely than management does, the accountant is perhaps better able to give impartial advice which will safeguard the interests of the enterprise while at the same time disclose essential truth to investors and the public.

While the accounts in your industry are prescribed in most instances by the several commissions insofar as operating companies are concerned, the modern investment corporation in the utility field is without the area of regulation. Proposals to bring such units under some form of control are suggested from time to time and one has but to vision the problem not only as it relates to this industry but to all others to realize the difficulty of framing appropriate legislation. I doubt if legislation can be prepared which will accomplish any salutary results. We must trust—and I confidently assert—we may safely trust to the enlightened sense of responsibility which most of our present-day industrialists possess. I could not say this twenty years ago. The executive of that type in those days was a very rare specimen.

The costly and time-consuming processes which are involved in such questions as rates of return, the necessity for tariff protection, labor disputes, and other economic problems of similar character which continually con-

front us may largely be avoided by frankly recognizing the fact that we are in a capitalistic era which in turn implies that we shall accept a very definite type of economic philosophy. But the capitalism of today differs in many respects from the capitalism of the last generation, while the principles of sound accounting have in no wise changed. We, therefore, have at least one constant amid the variables. In political and economic controversies we need to know the facts, if proper answers are to be found, and these may be largely supplied by the accountant. There then remains an area for an honest difference of opinion but this area is greatly reduced because of the presence of reliable information. The most just solution humanly possible usually lies on either side of the area and generally at the precise point located by sound accounting and intelligent management working honestly together.

Domestic Uses

(Continued from page 698)

other words, the executive must be a thorough convert and must fully appreciate the power behind the combined forces of modern sales methods. I maintain that many gas companies are not making the most of their opportunity. I have observed companies who were willing, apparently, to accept a secondary position as a public utility in their community.

Suppose we say to the executive: How many water heater orders have you turned in to the sales department this month? Why not? He is working to make his city gas-minded, and his many contacts should furnish opportunities for his gas company to provide a better service. Then ask the same question of the meter installation crew, the shop force, or the auditing department. Every public utility employee is a servant of the community in which his company is located. He must recognize this responsibility and accept it as a part of his every-day job. It is incumbent upon the operating executive to inspire this consciousness, and to see that

every man and woman in the organization is imbued with the spirit of service. How can they serve our friends, the public, better than by helping them to enjoy all the comforts and conveniences which a modern domestic gas service has to offer?

We said "Cook with gas" until the nation adopted the suggestion. Now let us say "Enjoy real comfort in your home, with gas," and keep on saying it until the nation is convinced.

The executive and sales manager who are still looking primarily to cooking for the domestic load, and who are not convinced that water heaters, space heaters, refrigerators, clothes dryers, etc., should be as commonplace in the American home as gas ranges or electric lights are destined to become as extinct as the dodo.

Gas Meter Short Course

THE ninth annual gas meter short course under the joint auspices of Iowa State College and the Mid-West Gas Association will be held December 3 to 6 at the Iowa State College.

Inasmuch as the Mid-West convention consists largely of sales discussions and commercial activities, the importance of this meter short course and operators' conference has actually increased. The men attending this course get nearly four days of intensive study. The metermen will get more hours of instruction under expert supervision. The operators will have their own meetings and will discuss some timely questions pertaining to the gas business. Every man attending is bound to get new ideas by meeting other men and discussing similar problems with them. The course is of interest not only to metermen, but distribution and production men as well.

Factory and Industrial Show

ANNOUNCEMENT has been made that the American Industrial Factory and Production Exposition will be held in Chicago, Ill., in March, 1930.

Manufacturers in the gas industry who are interested in exhibiting at this show are requested to write to the managers, the Midwestern Engineering Exposition, Inc., 308 West Washington Street, Chicago, Ill.

Laclede Supplies Gas For Balloon Race

By R. D. LEWIS



The Goodyear VIII, winner of the 1929 Gordon Bennett race

IT may seem that free ballooning has lost its thrill in this age of heavier than air machines and propelled lighter than air crafts that easily cross the Atlantic. But there is a sporting venture in free ballooning that still holds a thrill for the pilot who trusts his luck to a gas-inflated bag and fickle air currents.

Princes of adventure, whose combined experiences would constitute an odyssey of the air more thrilling than fiction, prepared for the take-off in the annual Gordon-Bennett balloon classic this year at St. Louis. Representatives from six nations competing in the oldest form of air travel drew an enormous crowd to the field adjacent to the Catalan street plant of The Laclede Gas Light Co. A soldier from Belgium, who wore the Cross of Leopold; a Frenchman, dean of all pilots; a German chemist and a German artillery officer; the Secretary of Civil Aeronautics of the Republic of Argentina; a member of the Danish Army Air Service; a representative of the U. S. Army and one from the U. S. Navy, and a civilian

from this country made up the list. A more fitting arrangement for the promotion of international relations could hardly be found. The event was won by the United States, Wade T. Van Arman, in the Good Year VIII, travelling 347 miles for first place.

So long as gas plays such a prominent part in free ballooning, it is interesting to relate some of the details necessary to the success of such an event. Approximately 1,000,000 cu.ft. of gas, a day's supply for a good-sized city, were required for the nine racing balloons and the pilot balloon.

The availability of the gas was one of the factors in selecting the site near the Catalan street plant of the Laclede company. As far as the supply was concerned, everything was in readiness weeks before the start of the race. An 8-inch main was laid over ground from the by-pass on the exhaust of the pumping station near the holder to the balloon field. Valves were placed at equal distances to which the flexible tubing was attached and run to each balloon. The night before the race the holder, which has a capacity of 1,000,000 cu.ft., was lowered as much as practicable and then

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An interesting aerial view of the balloons lined up ready for the start, with the holder and plant of The Laclede Gas Light Co. in the background

filled with an oven gas of about .405 specific gravity. The pumping station at this holder has a capacity of 500,000 cu.ft. an hour and gas of this gravity can be produced in the ovens at the plant at the rate of 250,000 cu.ft. an hour, so there was never any question of supply. In fact, it was the intention to supply the gas at the rate of about 100,000 cu.ft. an hour, but when the crews started filling the balloons at 7 a.m. it was found they were using gas at the rate of 200,000 cu.ft. "Mon Dieu!" cried Captain Deyter, the Belgian ace, "even the gas in America is fast."

When it became evident that most of the bags would be filled long before the start of the race, the pilots slowed the rate of the inflation because it is difficult to hold a fully inflated balloon on the ground.

The inflation was under the supervision of a detachment of troops from Scott Field, Belleville, Ill. Each balloon has a capacity of 80,000 cu.ft., under the rules of the National Aeronautic Association, with ten per cent allowed for error.

As the gas is poured into the balloons, small sand bags, each weighing 40 pounds, were hung around the sides on the net covering the bag. As the inflation proceeds these are lowered by the crews. It is estimated that the weight on each balloon was 3400 pounds.

This is the third time that the Laclede company has been called upon to supply gas

for the international event. The first time was in 1907, the year following the establishment of the race by James Gordon Bennett, New York newspaper publisher. The 1929 race was the eighteenth event, the races having been suspended from 1913 to 1920 because of the war. The American distance record was established in 1910 by Captain Allen R. Hawley, with Augustus Post as his aide. They traveled 1173 miles, landing in the Canadian wilds where they were lost for a week. The duration record for the race is 73 hours, held by Col. Schaeck, of Switzerland, who floated much of the time over the North Sea with his anchor rope trailing in the water. The distance record for all nations is held by Maurice Bienaimé of France, who traveled 1334 miles from Stuttgart, Germany, to Moscow in 1912.

The humidity was high the day of the race and it was difficult for the bags to gain altitude, the result being that most of the ballast had to be thrown over and this, together with storms the following day, forced the aeronauts to descend without having neared any of the records.

Captain Hawley, the hero of the 1910 race, acted as referee and he was accompanied here by his former aide, Augustus Post. They have been comrades in adventure for more than a quarter of a century. When Captain Hawley was called upon to

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Educational Work—How It Is Done

By A. J. SARRE

BECAUSE of the fact that the employees' educational program of New Orleans Public Service, Inc., has been, all the way through in its development, an adaptation of courses to meet local conditions, there are many features which are unique in the industry.

It was found in the course of the establishment of different phases of employees' educational service that general conferences for special groups would prove decidedly helpful in making the men more efficient in their work and give them a clearer understanding of the necessity for proper public relations.

These conferences are held on company time, and are devoted to the instruction of the individuals in the best method of doing the job in accordance with the policy of the company. The case method of instruction is followed. It utilizes definite illustrations taken from their experiences on the job as a means of developing the subject up for discussion. It also provides the maximum opportunity for participation on the part of those in attendance.

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In the case of the meter readers, the series covered a period of approximately seven months. The men were brought in weekly. A complete analysis of the job of the meter reader was made from the standpoint of public contact with the end in view of developing a standard practice. The subjects discussed at the meetings for meter readers are as follows:

Cooperation—Considerable time was spent in analyzing the cooperative responsibilities of a meter reader. It also included a discussion of the various contacts with other departments, and brought out the necessity for the meter reader working in harmony with the rest of the organization.

Public Relations—An analysis was also made of the meter reader's job from the standpoint of public relations. This was developed by bringing out first of all the basic principles of good public relations, then by analyzing each phase of the meter reader's job and determining how his work could be made most effective in the development of good public relations.

Reading the Meter—Specific instruction was given in meter reading in order to check up on the ability of the men to make accu-



A scene in the gas fitters' school—some of the men are engaged in analysing and drawing various gas facilities, while others are engaged in pipe threading and other mechanical work. Many types of meters are in the room

rate readings. A study was also made of the various modes of procedure in obtaining readings under varying conditions in the field in order that a standard practice might be developed for doing the job.

The cost of errors in reading meters was emphasized by making an analysis of its effect on all of the departments that must handle the reading brought in by the meter reader.

Customer's Equipment—A study was made of the equipment installed on the customer's premises to provide electric and gas service. This information makes it possible for them to determine the condition of the meter without loss of time.

In connection with the gas department, there is a gas fitters' school. All employees of the gas meter department, including complaint men, are required to attend this school. It operates throughout the entire year. Four men are brought into the school each day and given instruction in one unit of the course.

For example: All of the men are put through the units of pipe-cutting and fitting before starting on meter setting. Written examinations are given and their rating determined by this as well as the type of work done in the school shop, and on the customer's premises. The instructor goes out on the job and checks up on the work at regular intervals to determine whether or not the men understand what has been taught, and the additional instruction that might be necessary.

The following is the general outline of the course:

I. General Information

1. Contact with the customer
2. Motor vehicle operation
3. Reading meters

II. General Pipe Fitting Practice

1. Standard fittings and their use
2. Capacity of appliances sold by New Orleans Public Service, Inc.
3. Method of checking installation to determine capacity of service, meter, customer's lines

III. Meter Work

1. The construction and operation of a meter
2. Inspection of lines prior to installation of service or meter
3. Standard service location

4. Standard practice in meter installation
5. Testing the meter after installation
6. Testing the lines after meter is installed

IV. Gas Leak Work

V. Complaint Work

1. To remove mixture of rust and water or rust and oil from service
2. To remove naphthalene
3. Broken line between main and service cock or trouble in the mains
4. Stoppage in meter due to condensation or flood water
5. Stoppage in meter—mechanical defect
6. Stoppage due to dry rust in customer's line between outlet side of meter and first branch.
7. Stoppage due to dry rust—customer's line—one appliance affected
8. Flame test to determine type of trouble
9. Condensation in customer's lines
10. Trapping or partial stoppage located in customer's fuel line, branch or appliance riser—one appliance affected
11. Freezing of condensation in sags or bends, in fuel lines or branches not properly drained
12. Clogged burner cocks—one appliance affected
13. Equipment for testing meter on customer's premises
14. Customer contact while making test and inspection on high bill complaint
15. Testing meter on high bill complaint

VI. Gas Appliances

1. Construction of gas burners
2. Adjusting gas burner mixing valves
3. The installation and operation of gas ranges, water heaters, etc.

VII. Gas Pressure and its Measurement

1. Method of calculating volume of gas delivered
2. The influence of height on pressure
3. Instruments used in measuring the pressure of gas—the water gauge or U gauge
4. The mercurial gauge
5. The use of Pitot's tube
6. The gas meter

There is also in operation a course in gas meter repairing. It is designed especially to meet the needs of the men engaged in gas meter repairing and rebuilding. The course is laid out to cover 26 weeks of lecture work lasting one hour each week, with two hours of practice work at the bench under the supervision of the instructor.



A classroom scene in the gas fitters' school—in the room are many types of gas lights, gas stoves, heaters, meters, water heaters, etc. The men learn by actually doing the work on the equipment

The purpose of the course is to train the men to repair and rebuild meters following the best practices that can be developed in order to put out a quality job in the least possible time. The outline of the course is as follows:

Gas Meter Repairing and Testing Course

Section 1—Construction and operation of tin case meters: construction

Section 2—Repair of tin case meters:

- Removing top of meter
- Removing the back plate
- Removing valves
- Removing the back and front
- Removing the index
- Removing packing
- Removing diaphragms

Section 3—Boiling out and cleaning meters

Section 4—Examination of diaphragms

Section 5—Inspection of cases

Section 6—Tinning cases and parts

Section 7—Special repairs

Section 8—Testing of skeleton and channels:

- The long channel
- The clam shell and diaphragm channels
- The forked channels
- Partition leaks

Section 9—Putting in diaphragms:

- Testing diaphragms for leaks

Section 10—Putting on fronts and backs

Section 11—Grinding valves and valve seats

Section 12—Testing and setting valve arms and valves:

- Testing the valve arms for lost motion or wear

- Setting the valves relative to their seats

- Setting the valves relative to the tangent

Section 13—Setting long flag arms on flag rods relative to the diaphragm stroke

Section 14—Packing stuffing boxes

Section 15—Replacing the back plate

Section 16—Replacing the index and horizontal axle

Section 17—External pressure test after repairs

Section 18—Four pointing

Section 19—Slow motion test

Section 20—Proving:

- Cap meter screws
- Official proof
- Temperatures of meters
- Temperatures of air and oil
- Proper connections
- Test meter and connection for leaks
- Preparations for making a check test
- Check test
- Open column test
- Check index proving head
- Detection of non-register meters
- Method of expressing error in proof of meter

Section 21—Repairs classified

Section 22—Adjusting meters:

- Check and open proofs
- Short method of adjusting meters on check and open proofs
- Difference in check and open proofs (probable reasons)

Section 23—Method of setting meter valves

Section 24—Topping meters:

- Testing tops for leaks

Section 25—Cleaning and painting meter

This training has proved decidedly beneficial. It has raised not only the efficiency of the employees through teaching them more about their job, but it has also given them a clearer vision of the part they play in the organization. It has made them conscious of the fact that each plays an important part in the success of the company's service.

IN MEMORIAM

THE following members of the American Gas Association died during the past Association year:

A. A. Armstrong, Manufacturers Gas Co., Bradford, Pa.

C. Kemble Baldwin, Robins Conveying Belt Co., New York, N. Y.

Wm. Baurhyte, Los Angeles, Calif.

F. C. Bradbury, Crane Company, Chicago, Ill.

Robert E. Brown, Northern States Power Co., Mankato, Minn.

Herbert N. Cheney, Boston Consolidated Gas Co., Boston, Mass.

W. C. Cochrane, Detroit Brass & Malleable Iron Works, Detroit, Mich.

Frank A. Corbin, U. G. I. Company, Philadelphia, Pa.

J. Davidson, Aetna Oil & Gas Co., Charleston, W. Va.

Paul J. Delaney, Crandall Pettee Co., New York, N. Y.

Edward C. Durr, The Public Service Electric & Gas Co., Newark, N. J.

Charles Elderkin, Standard Gas Light Co., New York, N. Y.

David M. Evans, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Edwin C. Falvy, Sprague Meter Co., Indianapolis, Ind.

Leslie E. Folks, Consolidated Gas Co. of N. Y., New York, N. Y.

J. B. Forker, Oil Well Supply Co., Oil City, Pa.

John L. Fulling, C. H. Geist Co., Philadelphia, Pa.

H. A. Gager, Natural Gas Co. of West Virginia, Pittsburgh, Pa.

Albert W. Grant, Koppers Company, Pittsburgh, Pa.

Raymond L. Greene, The Brooklyn Union Gas Co., Brooklyn, N. Y.

H. A. Gump, Oklahoma Contracting Co., Dallas, Texas.

Wm. E. Helm, American Meter Co., Philadelphia, Pa.

W. C. Higgins, East Ohio Gas Co., Cleveland, Ohio.

W. S. Hoyte, Flint Hills Oil & Gas Co., Wichita, Kansas.

J. T. Hutchings, The U. G. I. Company, Philadelphia, Pa.

Geo. H. Jones, East Ohio Gas Co., New York, N. Y.

J. F. Kelly, The Brooklyn Union Gas Co., Brooklyn, N. Y.

R. B. Kilpatrick, Windsor Gas Company, Windsor, Ont., Canada.

Miss Maye Lovell, Consolidated Gas Co. of New York, New York, N. Y.

John B. Luse, Interstate Natural Gas Co., New York, N. Y.

James T. Lynn, Pasadena, Calif.

Edward P. Martin, East Ohio Gas Co., Kent, Ohio.

Edward K. McGill, New York, N. Y.

C. B. McKinney, Houston Pipe Line Co., Houston, Texas.

M. A. Mickley, Marion Gas Co., Marion, Ohio.

Fred G. Nicolaus, Reliable Stove Co., Cleveland, Ohio.

Ambrose K. Quinlan, East Ohio Gas Co., Cleveland, Ohio.

D. A. Reed, City of Duluth Water & Light Co., Duluth, Minn.

W. E. Reynolds, Detroit Stove Co., Detroit, Mich.

Louis J. Ruhl, Coal Conversion Co., New York, N. Y.

J. G. Schonfarber, Atlantic Tubing Co., Providence, R. I.

George B. Vance, Mapleton, Pa.

H. A. Weddell, The Peoples Gas Light & Coke, Co., Chicago, Ill.

Fourth Purdue Gas School to Be Held November 13-14-15

PURDUE UNIVERSITY announces its Fourth Annual Gas School to be held at Lafayette, Ind., on November 13-14-15, under the direction of the Engineering Extension Department, and the School of Chemical Engineering, with the Indiana Gas Association cooperating.

The two days of the gas school will feature repair and maintenance of house meters and will include bench work. The last half of the meeting will feature water heating, refrigeration, and house heating.

The new gas engineering research laboratory will be in operation and will offer a demonstration on gas-fire conversion units during the school.

The program may be obtained by addressing the Engineering Extension Department, Purdue University, Lafayette, Ind.

Who Wants Old Books?

A BOOK collector of Providence, R. I., has a copy of "Practical Treatise on Gas Light," by Frederick Accum, second edition, published in 1815 in London.

Those interested in acquiring antique gas books might communicate with the owner through F. C. Freeman, of the Providence Gas Co., Providence, R. I.

What Are the Future Opportunities?

A recent issue of the *Industrial Bulletin* of Arthur D. Little, Inc., Cambridge, Mass., contains the following article on the opportunities for gas.

IN 1928 the production of gas manufactured from coal by all methods within the United States reached the enormous total of 1095 billion cu.ft. A great deal of this was used at the place of manufacture for heating coking retorts, open hearth furnaces, and in other large scale industrial uses. Public service gas companies distributed some 450 billion cu.ft., three-fourths of which was consumed in a multiplicity of home appliances.

The domestic gas industry has been forced to abandon its former policy of waiting for customers, or merely saying, "If it's heat you want, it's gas you want." Having lost a large portion of its lighting load, the industry has been more actively furthering the use of gas-fed ranges and water heaters. House heating by manufactured gas has some advantages, particularly with respect to cleanliness and the ease with which the flow of fuel to the furnace may be controlled. With increase in population and the extension of gas mains into smaller communities, the domestic consumption of gas has increased steadily, in spite of the decrease in gas lighting. There is still nearly half our population to whom gas is not available, for the cost of distribution to rural sections is still prohibitive, except where such sections lie within the reach of high-pressure distributing systems leading to larger centers of population.

The large and steadily increasing use of gas for heating homes in winter has resulted in a winter demand that far exceeds that at any other season of the year. Hence the persistent effort to extend the use of gas into new industrial fields, and to develop new uses for it in the home. The industry is in need of new methods for increasing the summer demand for gas, or for making an extra supply available for winter without any great increase in plant investment. This

calls not merely for sales effort, but for intensified research.

Gas in the Home

Enthusiasts remark that if the public were to realize fully the advantages of gas in the home, gas would be much more universally used. Gas-fueled mechanical vacuum cleaner appliances completely burn all dust and lint accumulated during the cleaning process, thus eliminating the danger of handling the germ-laden material. A gas-powered washing machine, without any moving parts, is on the market. After the clothes are washed, they may be placed in a gas-heated dryer, which they leave with a degree of whiteness previously thought obtainable only with the help of the sun's rays.

In 1928, the sale of gas-fired refrigerators, which have no moving parts and which therefore are noiseless, was nearly five times that of 1927. Incinerators, dryers and other appliances are being popularized with the same zeal. Wherever gas is reasonably priced, the use of gas for domestic fuel purposes, as a substitute for coal, would practically pay for itself in increased life of wearing apparel and draperies, elimination of smoke, and better control of temperature and humidity. One gas manufacturer estimates potential growth of the manufactured gas industry to be 25 times present sales.

Industrial Uses of Gas

The largest present increase in the consumption of manufactured gas is in industrial uses. This load is especially desired by the gas producers, since it is more nearly uniform than the domestic load, and tends to balance fluctuations in the latter. Hotel and restaurant requirements possess the advantage of a peak load at a different hour of the day from the peak domestic load. Gas is especially desirable in the industrial preparation of food products, such as the processes of baking, canning, syrup boiling, pasteurization, and the roasting of coffee, cocoa and peanuts. Its cleanliness and flexibility make

it advantageous in varnish boiling, casting of aluminum, lead and brass, and galvanizing of iron and steel. Producer gas, freed from dust by the Cottrell process, is being used in glass-melting and annealing furnaces. Even in steam generation, gas has some advantages when burned under tubular boilers for high-pressure steam.

There are a number of more purely chemical problems connected with the industrial uses of gas. Some of the suggestions that have been made with regard to these are not immediately realizable, and may never become so. Yet an industry in search of new markets will do well to consider all possibilities; and research looking to industrial readjustment to changed economic conditions is apt to pay handsome profits.

A large factor in the cost of supplying gas is the expense of extending mains into new areas. When the mains have once been laid down, distribution may keep pace with increasing demands by means of high-pressure mains, laid out radially or as a loop, which feed the main distributing system at numerous points through automatically adjustable reducing valves. Nevertheless, increased demand occasionally overtakes the capacity of the high-pressure system to deliver gas. If gas of much higher heat value could be manufactured efficiently, the existing system might continue to meet considerable increases in demand.

Non-Poisonous Domestic Gas

It has been suggested that such an increase in the fuel value of domestic gas might be accomplished by operating at the gas works a conversion plant to convert water gas of 300 B.t.u. into a smaller volume of methane of 1000 B.t.u. per cu.ft., which is nearly twice the customary standard for manufactured gas (525 B.t.u.). Such a gas, which is similar to natural gas, used widely in the south central states, would have the further great advantage that it would be non-toxic, and so remove a source of danger from the use of water gas. Methane is physiologically inert; in fact, it is probable that one might live indefinitely in an atmosphere of methane and oxygen. Escaping gas might still wreck a home by causing an explosion, but

we would be unlikely to hear of sleeping families being wiped out by gas poisoning.

As a by-product in the conversion of water gas into methane, large quantities of carbon dioxide in fairly pure form would be available. It would be logical for the gas companies to produce solid carbon dioxide, which at a reasonable price could compete with other means for refrigeration, including the system of refrigeration that is operated by a gas flame. A plant designed for catalytic conversion of water gas to methane could be adjusted to operate continuously at full capacity, and in time of decreased demand for gas might produce one or more of several liquid organic products such as gasoline or methanol. Thus the plant would become a nucleus for a chemical industry.

The realization of the possibilities we have indicated can be brought about only through concerted effort, involving all the major interests dealing with coal and its products and uses. There are indications that under the present federal administration such a conjunction of effort may be attained.

A. G. A. Establishes Fellowship at Johns Hopkins



H.H.Ellerbrock, Jr.

THE Department of Gas Engineering in The Johns Hopkins University has recommended the appointment of Herman H. Ellerbrock, Jr., as the first American Gas Association fellow.

This fellowship was made possible by a pledge of \$350 per year by the American Gas Association. Under the terms of the fellowship, Mr. Ellerbrock will pursue graduate training and research in the School of Engineering. Mr. Ellerbrock is a graduate of this school in the class of 1927. In his undergraduate work he studied mechanical engineering. He is also an "A" course graduate of the Baltimore Polytechnic School. He is at present employed by The Consolidated Gas Electric Light and Power Company of Baltimore and has done work of a professional nature for the Bethlehem Steel Company.

He will specialize in gas engineering and plans to take a doctor's degree in this subject.

Seven Win McCarter Medals

SEVEN more gas company employees have been added to the ranks of those who possess the coveted and prized McCarter Medal for life saving. This medal is presented by the American Gas Association for saving lives from asphyxiation by application of the prone pressure method of resuscitation, and is donated by Thomas N. McCarter, President of The Public Service Corporation of New Jersey, Newark, N. J.

Five of these men are employees of the Western United Gas and Electric Co., of Aurora, Ill. They were presented with their medals at a recent company picnic, A. E. Schmeiser, general claim agent officiating at the ceremonies.

Frank Spoden, of the Wheaton division of the company, won his medal for saving the life of a man who was accidentally overcome with gas. The man's mother was also affected, but she was revived with aromatics. Gustav Nennitz and Curt Kreuger, fellow employees, were awarded McCarter Certificates for assisting Spoden.

George Warfs, of the Western United at Naperville, Ill., received his medal for saving the life of an employee of the company who was accidentally overcome while working. A McCarter Certificate was



G. M. Overlease



Victor Trinko



George Warfs



J. P. Bressette



C. J. Kerber



Lawrence Edelberg



Frank Spoden

presented to Edward Supernan.

Charles J. Kerber, of Elgin, Ill., Victor Trinko, of La Grange, Ill., and John P. Bressette, of Elgin, Ill., were the other Western United employees to receive the McCarter Medal. All of these men saved the lives of

fellow employees who were overcome with gas while engaged in their work. A Certificate was awarded to Emil Kuehner for assisting Trinko.

Lawrence Edelberg, of the Menominee and Marinette Light and Traction Co., Marinette, Wisc., won his McCarter Medal for saving the life of a fellow employee by the prone pressure method of resuscitation. This medal was presented at special exercises at the annual company picnic recently.

George M. Overlease, of the Northern Indiana Public Service Co., received his Medal at his company's picnic recently. He received the Medal for saving the life of a woman who was overcome with gas. He applied the prone pressure method of resuscitation successfully, and was assisted by Elmer Smith, James C. Huff, and Thomas E. Haney, all of whom are employees of the Northern Indiana company. For their deed they were awarded McCarter Certificates.

Canadian Association Issues List of Approved Appliances

THE first edition of the Canadian Gas Association List of Laboratory Tested and Approved Gas Appliances, as of October 1, 1929, has been printed and is now available.

It contains the names of fourteen manufacturers and distributors of gas appliances and equipment in Canada that have been awarded this Association's Laboratory Approval Certificates covering certain gas products that have been tested and found to comply with basic national requirements for safety.

It is hoped that this list will prove of value to all interested in the production and sale of certified products and result in greater comfort, convenience, and safety in the use of gas.

The list will appear at intervals of three months, and will contain whatever additions are necessary at such times.

Plan Smoke Abatement Exhibit in England

ADVICE has been received from the British Commercial Gas Association that the Association will take part in the smoke abatement exhibition to be held at Manchester, England, during November.

This exhibition is being organized by the Smoke Abatement League of Great Britain and is being supported by the leading national in-

terests including those concerned with architecture and housing, health, gas, electricity, and engineering.

The gas industry will be actively associated with the project and in addition to its own display which will be devoted to a representation of the solution offered by gas combined with the conservation of the nation's fuel resources by the scientific carbonization of coal, there will also be a cooperative section organized by the gas industry, occupying approximately 500 square yards of space.

Expenditure for this will be covered by contributions from the gas industry.

Extensive publicity arrangements are in hand and a series of conferences is being organized at which leading men will give addresses on smoke abatement.

A special effort is being made to focus public attention on the value of coke as a smokeless fuel.

Wanted—A. G. A. Proceedings

THE American Gas Association Library will buy at least two sets of the American Gas Association Proceedings for the years 1919, 1920, 1921, and 1922.

This was when each Section's reports were bound in a separate volume. Will you please check up and see if you have any of these old Proceedings that aren't working and let us have quotations on them?

Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress of August 24, 1912

Of the American Gas Association Monthly published monthly at Brattleboro, Vermont, for October 1, 1929. State of New York, County of New York, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Howard F. Weeks, who, having been duly sworn according to law, deposes and says that he is the Editor of the American Gas Association Monthly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown on the above caption, required by the Act of August 24, 1912, embodied in section 41, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., New York, N. Y.; Editor, Howard F. Weeks, New York, N. Y.; Managing Editor, None; Business Managers, None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) American Gas Association, 420 Lexington Avenue, New York, N. Y.; President, Oscar H. Fogg, 420 Lexington Avenue, New York, N. Y.; Vice-President, B. J. Mullaney, 420 Lexington Avenue, New York, N. Y.; Treasurer, C. E. Paige, 420

Lexington Avenue, New York, N. Y.; Managing Director, Alexander Forward, 420 Lexington Avenue, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

HOWARD F. WEEKS.

Sworn to and subscribed before me this 30th day of September, 1929.

[Seal]

LAWRENCE P. BROWN,

Notary Public, New York County Clerk's No. 830. N. Y. Co. Register's No. 0-7-A. (My commission expires March 30, 1930.)

Affiliated Association Activities

Colorado Utilities Association



R. M. Morris

THE officers elected at the annual convention of the Colorado Utilities held in Glenwood Springs, Colorado, September 2, 3, and 4, take office as of July 1, 1930. They are: President, Ray M. Morris, Mountain States Telephone & Telegraph Co., Denver, Colorado; vice-president, Ralph W. Booze, Colorado Central Power Co., Golden; vice-president, W. N. Clark, Southern Colorado Power Co., Pueblo; vice-president, J. L. Adams, Denver Tramway Corp., Denver; and secretary-treasurer, O. A. Weller, Public Service Co. of Colorado, Denver.

Empire State Gas and Electric Association

AT the twenty-fourth annual meeting of the Empire State Gas and Electric Association held at Saranac Inn, New York, September 19 and 20, William J. Welsh was elected President for the ensuing year. John N. Carlisle was elected first vice-president; Frank W. Smith, second vice-president; and Henry O. Palmer, treasurer.

Members of the executive committee elected to serve three years are: Charles S. Ruffner, Alfred H. Schoellkopf, George W. Olmstead, and D. E. Manson. Frederick A. Stoughton takes Mr. Carlisle's place on the executive committee with a two-year term, and Col. William Kelly takes Mr. Palmer's place with a one-year term.

The 1930 schedule of the Empire State Gas and Electric Association lists the following meetings: January—Women's Section; February—Commercial Section; March—Gas Section; April—Accounting Section; May—Accident Prevention Section.

Canadian Gas Association

AT a recent meeting of the Executive Committee of the Canadian Gas Association it was decided to accept the invitation of the Nova Scotia Light & Power Co., Ltd., to meet in Halifax in 1930. The Committee has chosen

Tuesday and Wednesday, June 24 and 25, 1930, as the convention dates.

This time was selected with a view of meeting the convenience of the American friends of the Canadian Gas Association who are cordially invited to attend this convention. They can reach Halifax in time for the meeting by taking boats from either New York or Boston on Saturday, June 21. It is the hope of the Canadian Gas Association that many gas men from the United States will avail themselves of this opportunity to enjoy a holiday and attend the annual gathering of the Canadian gas fraternity.

Pacific Coast Gas Association

THE registered attendance at the recent annual convention of the Pacific Coast Gas Association totaled 381, a record for conventions in a location north of Los Angeles. It is interesting to note that this attendance included 189 gas employees coming from six states, from Canada and from Hawaii, 41 gas appliance manufacturers, 68 representatives of supply houses, nine miscellaneous, three whose company affiliations are unknown, and 71 ladies.

The papers on the program were of an unusually high caliber resulting in several merit awards. Two gold medals were awarded in the Accounting Section, one to R. A. Hornby of the Southern California Gas Co., Chairman of the Committee on Fixed Capital, and the second to A. T. Kelly of the Pacific Gas and Electric Co., Chairman of the Committee on Preservation and Destruction of Records. One gold medal was awarded in the Public Relations Section, going to Geo. L. Myers, of the Portland Gas and Coke Co., Chairman of the Committee on Legislation and Taxation. This report will be published in pamphlet form by the Association. A fourth gold medal was awarded to F. S. Wade, President of the Southern Counties Gas Co., in token of the Association's appreciation of his assistance in financing the Cooperative Advertising Campaign in his position as Chairman of the Ways and Means Committee.

Honorable Mention was awarded to the following:

Committee on Sales Department Budgeting, Commercial Section, C. R. Miller, Portland Gas and Coke Co., Chairman.

Committee on Cooperative Advertising, Commercial Section, D. L. Scott, Los Angeles Gas and Electric Corp., Chairman.

Committee on Natural Gas Transmission Pipe Lines, Technical Section, M. R. Thompson, Southern Counties Gas Co., Chairman.



W. J. Welsh

Committee on Gas Generator Refractories, Technical Section, T. N. Kellert, Los Angeles Gas and Electric Corp., Chairman.

Committee on Materials and Methods, Technical Section, W. A. Bahr, Pacific Gas and Electric Co., Chairman.

Committee on Adapting Appliances to a Change in Heating Value, Technical Section, A. R. Bailey, Los Angeles Gas and Electric Corp., Chairman.

Committee on Measurement of Large Gas Volumes, Technical Section, F. A. Hough, Southern Counties Gas Co., Chairman.

Committee on Chemical Control, Technical Section, Duncan Stewart, Pacific Gas and Electric Co., Chairman.

Committee on Oil Gas Production, Technical Section, R. R. Ripley, Portland Gas and Coke Co., Chairman.

Committee on Organic Sulphur, Technical Section, K. N. Cundall, Pacific Gas and Electric Co., Chairman.

Paper: Service is the Key to Better Public Relations, W. M. Henderson, Los Angeles Gas and Electric Corp.

Paper: Recent Developments in Oil Gas Production, L. B. Jones, consulting gas engineer.

The Basford Trophy for the best section program for the year was awarded to the Public Relations Section whose Chairman was A. E. Holloway, of the San Diego Consolidated Gas and Electric Co.

By action of the board of directors the title of Clifford Johnstone was changed from Executive Secretary to Managing Director.

Mr. Bivens, the newly elected President, has announced the following appointments:

Accounting Section

Chairman, D. G. Martin, Pacific Gas and Electric Co., San Francisco.

Vice-Chairman, M. W. Thernes, Spokane Gas and Fuel Co., Spokane.

Vice-Chairman, R. A. Hornby, Southern California Gas Co., Los Angeles.

Commercial Section

Chairman, J. Earl Jones, Portland Gas and Coke Co., Portland.

Vice-Chairman, F. U. Naylor, Pacific Gas and Electric Co., San Francisco.

Vice-Chairman, Frank Weiss, Los Angeles Gas and Electric Corp., Los Angeles.

Public Relations Section

Chairman, Geo. L. Myers, Portland Gas and Coke Co., Portland.

Vice-Chairman, J. F. Pollard, Pacific Gas and Electric Co., San Francisco.

Vice-Chairman, J. C. Gilbert, Southern Counties Gas Co., Santa Monica.

Technical Section

Chairman, Wm. Moeller, Jr., Southern California Gas Co., Los Angeles.

Vice-Chairman, J. E. Kelley, Pacific Gas and Electric Co., San Francisco.

Vice-Chairman, R. R. Ripley, Portland Coke and Gas Co., Portland.

Philadelphia Company Issues Code of Ethics

IN a booklet entitled the Gas Works News, the Philadelphia Gas Works Co., Philadelphia, Pa., has published a code of ethics for distribution among its 3500 employees.

Conrad N. Lauer, President of the company, in announcing the publication of the booklet, says the Code of Ethics "completely covers the thoughts I wish to convey to you as my idea of the spirit that should prevail in an operating organization. I look for the complete co-operation of every employee with me and with each other, in order that we may fulfill our obligation to the public and to ourselves."

Honor, courtesy, self-control, and loyalty form the quartette of principles held the most essential for the public utilities employees. A sense of individual responsibility plus the ability to do good teamwork marks the worker who will go farthest on the road of his own and public service advancement.

That idealism is considered necessary to big business is set forth by the counsel:

"Ideals are indispensable to material, moral and spiritual progress. Unless our standards are high, we cannot expect to be at our best, render our best, or achieve the best in life."

Under the further sub-headings of "Truth," "Character," and "Honesty," employees are told:

"Honesty is the only sane policy."

"Everyone is responsible for the use of time, money and materials."

"Acquire knowledge, win promotion and achieve success, but never by unfair or dishonorable means. . . . The service we perform for others demands the highest standards of honesty, truthfulness and justice."

Maxims under "Self-Control" dictate:

"Pettness, spitefulness and jealousy are characteristic of small minds and should not be tolerated in big business. Resentment of just criticism, sulkiness and wounded pride reflect an irritable disposition and lack of self-control."

"Constructive criticism is the stepping stone to progress."

Mr. Lauer, in addition to being President of the Philadelphia Gas Works Company, is a vice-president of the United Gas Improvement Co., and a member of the Philadelphia Gas Commission.

The Monthly Tabloid—Personal and Otherwise

Fred F. Doyle, who has been in charge of engineering design in the construction work of the Pacific Gas and Electric Company's natural gas development in California, has been named manager of that company's Natural Gas Division. Mr. Doyle's appointment became effective September 1. The Natural Gas Department is a newly organized one.

Mr. Doyle brings a background of splendid experience in the natural gas field to his new position, having been general field superintendent of the Midway Gas Company, and more recently supervising engineer of the Southern California Gas Company. He has been in the natural gas industry since 1912, being at that time associated with the Kansas Natural Gas Company, leaving there to take the position with the Midway. Mr. Doyle has been with the P. G. and E. since January.

F. W. Benson, of Philadelphia, has been appointed treasurer of the American Meter Company, and elected to membership on the Board.

Mr. Benson has for many years been assistant treasurer, and fills the vacancy caused by the death on June 30 of the late William E. Helme, who was treasurer and vice-president of the company.



H. J. Mandel

Following a connection of several years with the Surface Combustion Company, Henry J. Mandel has resigned and is now associated with the Columbia Burner Co., of Toledo, Ohio, as general sales manager in charge of both house heating and industrial divisions.

Mr. Mandel has had long experience in this branch of the industry.

According to word received at Columbia University, G. D. Horne, student in the home study course in manufactured gas, who was formerly connected with the Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y., is now located at Barranquilla, Colombia, South America.

Howard S. Boyle, for several years director of sales education for the Standard Gas Equipment Corporation, has become sales promotion manager for Electrolux, the gas refrigerator, and will make his headquarters at the Evansville, Indiana, plant of Servel, Inc.



Hugh H. Cuthrell, shown at the right, is now acting new business manager for The Brooklyn Union Gas Co., Brooklyn, N. Y., succeeding Prescott B. Wiske, resigned, whose picture appears at the left. Announcement of this was made in the October issue of the MONTHLY

F. W. Goodenough, of the Gas Light and Coke Co., London, England, was recently elected President of the Incorporated Sales Managers' Association, after having served as its chairman for three years.

James Stewart Richardson, who is with the Joint Committee of National Utility Associations, New York, N. Y., was recently appointed a deputy sheriff of the Borough of Queens, New York City.

Roy A. Zeigler, who was formerly with the Jacksonville Gas Co., Jacksonville, Fla., is now vice-president and general manager of the Lowell Gas Light Co., Lowell, Mass., succeeding E. J. Boothby.

First Aid and Safety Devices Approved

THE attention of member companies of the American Gas Association is called to the following first aid and safety devices which have been approved as a result of inspection and test by the Committee on First Aid and Safety Devices:—

Hospital-Type Atmos Inhalator—American Atmos Corporation, Wilkesburg Station, Pittsburgh, Pa.

Torridaire Hot Pad—Mine Safety Appliances Company, Braddock Ave. and Thomas Blvd., Pittsburgh, Pa.

Panis Resuscitator—F. Ducasse, American Agent, 25 West 45th St., New York, N. Y.—those contemplating purchase of this should request results of field tests now under way.

Clark Oxygen-Carbon Dioxide Inhalator—Oxygen Equipment Corporation, Newark, N. J.

Initiative—American Ideal

(Continued from page 688)

your true objective—namely to drive your competitors from your field and to obtain the maximum possible development of the market—the question of the policy to be pursued in regard to production will be greatly simplified.

I now come to my second problem. All this planning and scheming to build up your industry will be of no avail unless you can remove from your path a great obstacle which now obstructs it—namely, the high costs and, in some cases, the poor quality of the appliances which your customers must have in order to utilize your service. This is one point at which the electric supply companies have a distinct advantage. Almost from the beginning the manufacture of electrical appliances has been in the hands of a few large and powerful producers, who by the magnitude of their operations were enabled to produce at low costs and to spend large sums in technical research and I have a lurking suspicion that the rapid expansion of the electric industry has been due more to the initiative of the manufacturers than to the genius of the managers of the electrical supply companies. Stimulation of this sort has been lacking in the gas industry.

There are no such units of manufacture in the gas appliance field. The business is divided among a multitude of small producers whose costs for what they produce are high and who have hardly begun to turn their attention to the appliances required by industry if gas is to be used as a substitute for coal. Indeed, the situation is so bad that the few gas companies which have really tried to develop the industrial field have often been forced to do their own research and even to design the appliances themselves. This is an intolerable situation which must be put to an end and if a combination of appliance manufacturers into a unit large enough to handle the situation along modern lines cannot be arranged, the gas companies themselves may be forced to undertake the manufacture of appliances for the utilization of gas in some such way as the Western Electric Company does for the telephone in-

dustry. I realize that this is a very difficult problem and that the administrative structure of the gas industry would have to be radically changed if manufacture and research are to be added to your obligations. It is a venture which should be avoided if possible but the time has come, I think, when the manufacturers should be told plainly what the nation expects of them. Your relations with them are such that this is a disagreeable duty which you would like to shirk but "needs must when the devil drives." Put the gad to them or the American people will put the gad to you.

The Industry's Program

(Continued from page 694)

large attendance; the Sales Conferences, as already stated, were well distributed and widely attended. The volume and nature of material put out by the Publicity and Advertising Section have grown steadily in popular appeal. Altogether the Association activities, guided by the Executive Board in light of the Five-Year Program, proceeds upon well-thought-out and carefully planned lines with steadily maintained objectives.

The President, Colonel Fogg, has been a leader in the real sense. He has not only responded to every request to give his time and thought to Association affairs but has himself contributed many of the constructive suggestions for advancement of the industry through the Association. He has travelled extensively in attendance at and participation in conventions of affiliated associations, and to his vital constructive leadership may be attributed very much of the Association's services to the gas industry.

The members of the Executive Board are splendid in attendance at meetings and in their earnest and constructive interest in the Association's affairs, and lend their sympathetic support to every advance move. To the other officers, including Vice-President Mulaney and Treasurer Paige, to Headquarters staff and employees, and to the members of the Association generally, I make grateful and sincere acknowledgment for their support and operation.

Why Companies Advertise

(Continued from page 679)

benefits of gas brought to many additional people in quicker time, and volume of output built up so that the price per unit of service could be more rapidly reduced.

We in the gas industry have nothing to fear from doctrinaires and demagogues if we look the situation squarely in the face and defend ourselves manfully and intelligently. We are playing a most important part in the welfare and progress of the nation, and if we continue to fight our own battles fairly with clean weapons, the public will not only treat us right but will applaud us.

The Industry and the Public

(Continued from page 670)

Customers who use insufficient gas to pay for the cost of carrying them do not regard themselves as deadheads. They would resent such a classification. They think that all there is to gas service is the gas, and that if they pay the same price for that per thousand cubic feet as everybody else does, they are paying in full for the service.

They need to be shown that there is something more to gas service than gas, that mere installation of a meter and connection with the mains are themselves a service, and cost something to render. A gas customer carried at a loss would not expect to join an automobile club or other organization furnishing road service and pay the yearly fee only in case he had a breakdown on the road. He gets some benefit for which he willingly pays, even if he never calls for help. He can readily see that it costs the club something to be prepared to render assistance on the road if he needs it, whether he actually calls for it or not. So a person connected with gas mains receives a service in addition to that represented by the gas consumed. He would not grumble about paying for that service if he knew what he was really paying for, especially if he thought he was getting that service at the expense of his neighbors. Most Americans

take pride in their ability to pay their own way.

I think you should also make it clear to the public that customers carried at a loss through faulty rate schedules are not persons unable to pay for the cost of carrying them—that it is not a question of the rich carrying the poor but of the poor carrying the rich.

In a case before the Michigan commission a careful analysis was made to find out the class of customers who were not paying for the actual cost of the service. It was found that they were persons well able to pay. It was shown that the small users of gas were largely business and professional men, and that this small consumption was in homes and apartments of the middle class where there were only two or three in the family, where there were no children, or the children had grown up and left home, and where the family went out for meals, or bought partially prepared food and did very little cooking, and in the homes of those most fortunately situated who spent several months a year away from home with the house closed and so with little or no use of gas.

Certainly there is no reason why customers of this kind should be furnished service at the expense of anybody else, and especially at the expense of customers not so well off as they themselves. The public would agree to that if the facts were known.

Even if customers carried at a loss were poor people, the practice would still be unfair to other gas customers. But you do not need to explain that, so long as these dead-head customers are not the needy, but the well-to-do.

The public will gradually come to see that there is no difference between free service and service at less than cost, or partially free service, except in the degree of wrong done to paying customers. The public will in time come to be as hostile to service at less than cost or partially free service, as it now is to free transportation on railroads and rebating. You should hasten that day as much as you can.

Sound rate schedules are beneficial both to you and the public, and the public, when it gets the increasing benefits which will come from the unhampered development of your business under proper rate schedules, will thank you for insisting on their adoption.

The public, notwithstanding a little friction now and then, has confidence in your integrity and vision and looking to the future expects you to make still greater contributions to the public welfare.

Laclede Supplies Gas

(Continued from page 704)

describe the 1910 race at the air banquet at the Jefferson Hotel the black eyes of the urbane Post lighted with amusement.

Post later told how aeronauts live in balloons. There is a little shelf on the side of the basket where the pilot or his aide can take a nap, or else holes in the basket permit one to stick their feet through and recline in this manner. Food is carried in cans, and when a bit of warm food is desired some quick lime is mixed with water and when it boils the food is placed over this and warmed.

Gas Engineering Course at Johns Hopkins University

FOR five years The Johns Hopkins University has been giving a course in Gas Engineering. This course provides for young men a technical training along engineering lines which will qualify them to render the highest engineering service to the gas industry. This year the University starts its classes for instruction on October 1, 1929.

Students are enrolled on a personal basis or as the beneficiaries of scholarships. The following gas companies are continuing as the donors of scholarships worth \$450 each, per year.

	Scholarships
Central Public Service Corporation, Chicago, Ill.	5
Washington Gas Light Company, Washington, D. C.	3
The C. H. Geist Company, Philadelphia, Pa.	2
Consolidated Gas Company of New York, New York, N. Y.	2
Consolidated Gas Electric Light and Power Company of Baltimore, Baltimore, Md.	2

Mobile Gas Company, Mobile, Ala.	1
Philadelphia Suburban Gas and Electric Company, Chester, Pa.	1
The Koppers Company, Pittsburgh, Pa.	1
The Tampa Gas Company, Tampa, Fla.	1

All of these scholarships are filled for the coming scholastic year. Some companies have awarded these scholarships to the sons of employees; others to qualified young men, often the sons of customers, living in the territory served by the company concerned, the final selections being made by means of a competitive examination.

The American Gas Association has recently established one fellowship at Hopkins. Through a special committee, the Association has investigated the gas engineering work at Hopkins and strongly endorses the program.

A promising future is assured to those young men who select gas engineering as a career, especially if they prepare at The Johns Hopkins University, where the course is generously supported by many gas companies, gas appliance manufacturers, publishers, and leaders of the Industry.

Two classes have already been graduated. All graduates have secured good positions and many more could have been placed.

The enrollment for the scholastic year 1929-30, based on present knowledge, will be approximately 32 students, coming from various sections of the country.

Correspondence regarding enrollments should be addressed to the Registrar of the University, or to Dr. Wilbert J. Huff, Professor of Gas Engineering, The Johns Hopkins University, Baltimore, Maryland.

Practical vs. Theoretical Rates

(Continued from page 684)

tion. These figures always result in a justifiable charge per customer that is larger than the one for which I have asked.

I present to the commission the reduction in discrimination that my proposed form of rate makes when compared with the now existing form of rate and ask them to grant me permission to take this progressive step without attempting to prove that that particular charge which I have set up results in the ultimate goal to which we are all striving, the theoretically correct rate.

I find that this leaves the opposition very few figures to play with since they never provide any of their own. For myself I wish to continue to provide them with just as few items about which to quibble as is possible.

Associations Affiliated with A. G. A.

Canadian Gas Association

Pres.—Kenneth L. Dawson, Nova Scotia Light & Power Co., Ltd., Halifax, N. S.
 Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.
 Conv., June 24, 25, 1930, Halifax, N. S.

Colorado Utilities Association

Pres.—H. S. Robertson, Denver Tramway Corp., Denver, Colo.
 Sec.-Tr.—O. A. Weller, Public Service Co. of Colo., Denver, Colo.
 Conv., 1930.

Empire State Gas and Electric Association

Pres.—William J. Welsh, New York & Richmond Gas Co., Staten Island, New York.
 Chairman Gas Section—R. Van Vliet, New York & Richmond Gas Co., Staten Island, N. Y.
 Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
 Conv., 1930.

Illinois Gas Association

Pres.—E. E. Lungren, Western United Gas & Electric Co., Aurora, Ill.
 Sec.-Tr.—George Schwanner, 305 Illinois Mine Workers Bldg., Springfield, Ill.
 Conv., 1930.

Indiana Gas Association

Pres.—C. L. Kirk, Citizens Gas Co., Indianapolis, Ind.
 Sec.-Tr.—F. W. Budd, Central Indiana Gas Co., Muncie, Ind.
 Conv., 1930.

Michigan Gas Association

Pres.—A. I. Snyder, Detroit City Gas Co., Detroit, Mich.
 Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
 Conv., 1930.

Mid-West Gas Association

Pres.—E. H. Vieregg, Central Power Co., Grand Island, Nebr.
 Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.
 Conv., Waterloo, Iowa, Apr. 14-16, 1930.

Missouri Association of Public Utilities

Pres.—T. J. Strickler, Kansas City Gas Co., Kansas City, Mo.
 Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
 Conv., 1930.

New England Gas Association

Pres.—J. J. Quinn, Boston Consolidated Gas Co., Quincy, Mass.
 Exec. Sec.—C. D. Williams, 41 Mount Vernon St., Boston, Mass.
 Chairman Operating Div.—Isaac T. Haddock, Cambridge Gas Light Co., Cambridge, Mass.
 Secretary Operating Div.—H. G. Taylor, Lawrence Gas & Electric Co., Lawrence, Mass.
 Chairman Sales Div.—J. H. Sumner, Cambridge Gas Light Co., Cambridge, Mass.
 Sec.-Tr. Sales Div.—A. M. Slattery, Hoffman Heater Co., Boston, Mass.
 Chairman Industrial Div.—L. B. Crossman, Boston Consolidated Gas Co., Boston, Mass.
 Sec.-Tr. Industrial Div.—Chas. H. O'Donnell, Boston Consolidated Gas Co., Boston, Mass.
 Chairman Acctg. Div.—E. D. Washburn, Massachusetts Lighting Co., Boston, Mass.
 Sec.-Treas. Acctg. Div.—Otto Price, Boston Consolidated Gas Co., Boston, Mass.

Chairman Manufacturer Div.—T. H. Piser, Welsbach Co., Boston, Mass.

Sec.-Treas. Manufacturers Div.—J. H. McPherson, 750 Stuart St., Boston, Mass.

Conv., Feb. 19 & 21, 1930, Hotel Statler, Boston, Mass.

New Jersey Gas Association

Pres.—R. A. Koehler, Public Service Electric & Gas Co., Newark, N. J.
 Sec.-Tr.—H. E. Clift, Public Service Electric & Gas Co., Newark, N. J.
 Conv., 1930.

Ohio Gas and Oil Men's Association

Pres.—L. K. Langdon, Union Gas & Electric Co., Cincinnati, Ohio.
 Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, Ohio.
 Conv., 1930.

Oklahoma Utilities Association

Pres.—T. R. Weymouth, Oklahoma Natural Gas Corp., Tulsa, Okla.
 Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.
 Conv., March, 1930, Tulsa, Okla.

Pacific Coast Gas Association

Pres.—F. H. Bivens, Southern Counties Gas Co., Los Angeles, Calif.
 Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.
 Conv., 1930.

Pennsylvania Gas Association

Pres.—W. A. Norris, Lebanon Valley Gas Co., Lebanon, Pa.
 Sec.-Tr.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.
 Conv., 1930.

Pennsylvania Natural Gas Men's Association

Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.
 Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.
 Conv., 1930.

Southern Gas Association

Pres.—D. H. Levan, Jacksonville Gas Co., Jacksonville, Fla.
 Sec.-Tr.—G. H. Schlatter, Birmingham Gas Co., Birmingham, Ala.
 Conv., April 22, 23, 24, 1930, Savannah, Ga.

Southwestern Public Service Association

Pres.—Knox Lee, Southwestern Gas & Electric Co., Marshall, Texas.
 Chairman Gas Section—Frank L. Chase, Lone Star Gas Co., Dallas, Texas.
 Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
 No Convention, 1929.

The Public Utilities Association of Virginia

Pres.—A. W. Higgins, Virginia Public Service Co., Charlottesville, Va.
 Sec.—A. B. Tunis, 301 East Grace St., Richmond, Va.
 Conv., Nov. 21 & 22, 1929, Chamberlin-Vanderbilt Hotel, Old Point Comfort, Va.

Wisconsin Utilities Association

Pres.—G. W. Van Derzee, The Milwaukee Electric Railway & Light Co., Milwaukee, Wis.
 Exec. Sec.—J. N. Cadby, 105 Wells St., Milwaukee, Wis.
 Meetings of Sections.

Twelfth Annual Convention of the American Gas Association
Atlantic City, N. J.

October 13-17, 1930

Employment Bureau

(Address All Communications to Key Number)

SERVICES REQUIRED

COMMERCIAL GAS ENGINEER required. Familiar large gas installations and appliances and capable supervising meter shop. Location, South America. Applicants should give full particulars, education, experience. References. Address A. G. A.

Key No. 0148.

WANTED—Young college graduates of mechanical or chemical engineering. Positions permanent. Good opportunity for advancement. Address A. G. A.

Key No. 0150.

WANTED—Natural Gas Engineer and Executive. Must have practical experience in construction of main line and distributing systems, ability to make gas sales and purchases, and thorough knowledge of general executive work. Give full details of previous employment, number of years, and salary desired. Address A. G. A.

Key No. 0152.

WANTED—Two high-grade first-class salesmen to sell appliances in divisions of public utility in South. Work in progressive cities. Salary and commission. Address A. G. A.

Key No. 0153.

HOUSE HEATING SALESMEN—Eastern Utility has vacancy for two men between 25 and 40 years of age for sales work in Gas House Heating. A thorough knowledge of heating and a successful sales record are essential. Permanent position with good opportunity. Please give age, education, experience, and salary desired. Replies will be considered as confidential. Address A. G. A.

Key No. 0154.

OLD ESTABLISHED MANUFACTURER of small gas appliance accessories located in the Middle West has opening for man with creative or inventive ability for the design and development of new devices. State age, education, experience and salary desired in first letter. Address A. G. A.

Key No. 0155.

LARGE EASTERN UTILITY (New York State)—desires a few recent technical graduates to specialize in gas engineering. Applicants should give full particulars as to education, experience, references, etc. Address A. G. A.

Key No. 0156.

SALES ENGINEERS—Wanted by large public utility in the Middle-West. Experienced in commercial and residential heating. Must be a high school graduate. College graduate from an engineering course preferred. Permanent position. Please state age, experience, education and salary expected. Address A. G. A.

Key No. 0158.

ENGINEER WANTED—A large utility in the South has an opening for a good man, in the Industrial Department. He should have some technical education and some experience, not necessarily in gas. Give all details. Address A. G. A.

Key No. 0159.

SERVICES OFFERED

YOUNG LADY with twelve years' experience in coke oven and gas business, desires secretarial position. New York City preferred. Address A. G. A.

Key No. 291.

AVAILABLE, a man who has been employed through a continuous period of years in nearly all branches of the gas business. General office to superintendent of manufacture and distribution, including both coal and water gas. Would like to make a similar connection or one of general supervision. Address A. G. A.

Key No. 293.

POSITION WANTED—Technical man now employed desires new location. Eight years' experience in distribution and transmission of natural and manufactured gas. Is able to organize and direct large crews. Also experienced in leakage surveys and appraisal work. Address A. G. A.

Key No. 294.

WANTED—Position as assistant to engineer of distribution by young man with four and one-half years' experience in Distribution Department of large corporation. 22 years old. Single. Willing to travel. Good references. Address A. G. A.

Key No. 296.

CERTIFIED Public Accountant (N. Y.) five years' gas and electric rate case and accounting experience, university graduate, age 30, immediately available. Address A. G. A.

Key No. 298.

A TECHNICALLY EDUCATED GAS ENGINEER, now employed, with 15 years' experience in Coal and Water Gas Operation, Distribution and Industrial Sales, desires new connection. Address A. G. A.

Key No. 299.

PUBLIC RELATIONS DIRECTOR—The State House and political reporter for one of the large New England newspapers desires connection with a public utility or manufacturing enterprise where his wide experience in publicity, house organs, statistics, business research, governmental and economic conditions will be of value. Ten years all branches newspaper work. Massachusetts Tech and Columbia. Age 29 and married. Has handled many public utility cases and other important newspaper assignments. Excellent recommendation. Address A. G. A.

Key No. 300.

EXPERIENCED APPLIANCE SALESMAN—Man with several years experience selling best known lines of gas heating appliances. Would consider similar position or direction of merchandising department some growing gas utility. Texas, Oklahoma or Kansas preferred, but will go anywhere opportunity offers. Address A. G. A.

Key No. 301.

ENGINEER, technically educated, with wide experience in steam engineering, operation and five years Superintendent of Customer's Service Department of a large gas company. Desires connection preferably where both experiences can be used to advantage. Address A. G. A.

Key No. 302.

AVAILABLE, New Business and Commercial Manager. Age 30, married. Has successful record merchandising gas appliances, house heating, etc., with Public Utility. Desires position in Commercial Field. Technical education and familiar with Engineering problems and Office routine. Good executive. Address A. G. A.

Key No. 303.

POSITION WANTED—Meter Foreman desires position with gas company. Experienced in all makes of meters. Best of references to character and ability. Address A. G. A.

Key No. 305.

GAS ENGINEER, college education, six years' experience in gas distribution, both H.P. M.P. and low pressure, and water-gas manufacturing from 3,000 M per day plant to 15,000 M per day plant, and general gas company construction, desires engineering position as manager, assistant manager, or superintendent. Address A. G. A.

Key No. 306.

EXECUTIVE, able to qualify as manager would like to make change. Address A. G. A.

Key No. 307.

AVAILABLE, New Business and Commercial Manager or Supervisor. Age 35, married. Has successful record merchandising gas appliances, house heating, etc., with Public Utility. Desires position in Commercial Field. Technical education and familiar with Engineering problems and Office routine. Good executive. Address A. G. A.

Key No. 308.

POSITION WANTED—Commercial manager for 10 years of large Southern company with 8000 meters desires new connection. Is 53 years old. Experienced in industrial work and hotel and restaurant business, as well as advertising and general duties of commercial manager. Speaks Spanish. Good references. Address A. G. A.

Key No. 309.

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